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OIL SPILL ON THE MONONGAHELA AND OHIO RIVERS

HEARING

BEFORE THE

SUBCOMMITTEE ON
ENVIRONMENTAL PROTECTION

OF THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

SECOND SESSION

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OIL SPILL ON THE MONONGAHELA AND OHIO RIVERS

THURSDAY, FEBRUARY 4, 1988

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:10 a.m., in room 406, Dirksen Senate Office Building, Hon. George J. Mitchell (chairman of the subcommittee) presiding.

Present: Senators Mitchell, Baucus, Chafee, Stafford, Pressler, Lautenberg, and Durenberger.

OPENING STATEMENT OF HON. GEORGE J. MITCHELL, U.S. SENATOR FROM THE STATE OF MAINE

Senator MITCHELL. Good morning, ladies and gentlemen.

At today's hearing of the Subcommittee on Environmental Protection we hope to learn the facts of the recent spill from the Ashland terminal in Floreffe, Pennsylvania, and the subsequent discharge of close to one million gallons of diesel oil into the Monongahela and Ohio Rivers.

While the spill was not the largest on record, it had very significant impacts on thousands of people in the region through interruption of water supplies in communities downriver. The spill also caused environmental damage, including damage to fish and waterfowl, and may have contaminated some soil and ground water.

The response by Ashland in the aftermath of the incident is consistent with that envisioned under the Clean Water Act; that is, the responsible party is the first line of response and should immediately make necessary funds, personnel, and equipment available for cleanup with a Federal on-scene coordinator present to monitor the responsible party's activities.

The spill, however, raises serious questions about the adequacy of prevention and response programs. Some of these questions include:

Are the current requirements on Federal and State Governments sufficient to prevent this type of spill in the future?

Do spill control requirements adequately consider the possibilities of very large releases, such as this one?

Should the requirements for prevention and containment of spills be tightened or changed in any way?

Should we require a more specific plan for response to a spill at a given site?

Should the State or Federal Government take a more active role in review of spill control plans and inspection of sites?

Does current law provide for an adequate range of responses to such a spill, including the provision of safe drinking water supplies?

During this hearing today, I hope we will learn more about the specifics of the spill, and that the witnesses will also address the larger issues of the adequacy or inadequacy of State and Federal programs.

In the last Congress, the Senate passed oil spill legislation which I introduced. I supported the legislation because I believe we must assure adequate protection in the event of an oil spill.

I am convinced, however, that any Federal effort will be helped, not hindered, by the continued existence and operation of State oil spill laws, some of which provide even more protection where appropriate and necessary. State oil spill laws are appropriate to assure that the public and the environment will receive maximum protection.

The spill we will hear about today also involved questions of regulation of above-ground tanks. I look forward to working with Senator Baucus, whose subcommittee has jurisdiction over above-ground tanks, with Senator Durenberger, who with Senator Baucus has been a leader in this area, and with my other colleagues to develop appropriate safeguards for these facilities.

I look forward to hearing from the witnesses. Before we do I want to call on my colleagues, for any opening statements they may have, in accordance with the rules of the committee in the order in which they appeared.

Senator Baucus.

Senator BAUCUS. No statement, Mr. Chairman.

Senator MITCHELL. Thank you, Senator Baucus.

Senator Stafford?

Senator STAFFORD. Thank you, Mr. Chairman.

I have no opening statement, but we have a lot of tank farms along both sides of Lake Champlain so I am very interested in hearing the witnesses today. I share your feelings with regard to State laws on this subject.

Senator MITCHELL. Thank you, Mr. Chairman.

We are pleased to have three of our distinguished colleagues present, and I understand that a fourth, Senator Heinz, is on the way. We will begin then with Senator Specter.

Welcome, Senator. We know this is an issue of great concern to you since it occurred in the State of Pennsylvania and is a subject in which you have displayed a longstanding interest. We look forward to hearing from you.

STATEMENT OF HON. ARLEN SPECTER, U.S. SENATOR FROM THE STATE OF PENNSYLVANIA

Senator SPECTER. In the absence of Senator Heinz, I will move into the chair with the microphone.

Senator MITCHELL. Fine.

Senator SPECTER. Mr. Chairman, thank you very much.

First, I want to commend you, Mr. Chairman, and this subcommittee for scheduling these very prompt hearings. We are convened here today on February the 4th within a very brief period of time from this very tragic incident which occurred on Saturday night, January 2, when a 90,000 barrel tank with the capacity of some four million gallons was destroyed in Floreffe, Pennsylvania and collapsed.

I was on the scene on Sunday afternoon and saw the event firsthand at the very initial stages of the cleanup, and it was a first class royal mess. The tank apparently had collapsed from within, and there was a rush of oil, since the tank had about three and a half million gallons of oil, into the entire area. Enormous adjacent tanks were pushed in on their sides. The oil was a torrent rushing into the nearby area, and some distance away, perhaps a quarter to a half mile, I didn't have the precise measurement, into the Monongahela River. But it was a mess at the time. Oil was strewn all around immediately adjacent to the tank. There was a lake of oil.

From that moment on the oil started its sweep down the Monongahela River and then down the Ohio contaminating water supplies in vast areas of Western Pennsylvania, in Ohio, in West Virginia, in Kentucky, and ultimately in Indiana. So it is an illustration as to how one tank in one locale can reach interstate proportions.

The Federal officials were on the scene very promptly, as were the State officials, as were the officials from Ashland Oil. The initial response I think was a very favorable one.

That afternoon I had EPA Administrator Lee Thomas on the telephone acquainting him with the specifics of my observations and asking that he personally intervene in the matter. I know that he did that afternoon. I talked to him again on Monday morning, January the 4th, and EPA's initial decision was to permit Ashland to proceed with the cleanup as is the responsibility of a private party under the law.

While the matter is far from resolved, my own sense is that Ashland has responded in a comprehensive way after the fact. Let's not address what should have been done before the fact, but has proceeded in a comprehensive way after the fact.

Officials from the Commonwealth of Pennsylvania were on the scene, officials from the EPA from the regional office were on the scene, and the matter was attended to in fairly prompt order.

My colleague, Senator Heinz has joined us. Let me defer to him at this point. I have been giving a background of the event, filibustering so to speak, until Senator Heinz could arrive to provide some of the specific details of the legislation.

Senator MITCHELL. Thank you very much, Senator Specter, for your comments.

We are pleased to welcome our distinguished colleague, Senator Heinz, who I have had the pleasure of working with for a long time in another committee.

Senator, we know this is a matter of great concern to you, one which you have been the leader along with Senator Specter. I commend you for your efforts and look forward to hearing your testimony here today.

STATEMENT OF HON. JOHN HEINZ, U.S. SENATOR FROM THE STATE OF PENNSYLVANIA

Senator HEINZ. Mr. Chairman, first, let me thank you for your prompt attention to this concern. I want to thank you also for being a cosponsor of the legislation I introduced earlier this week, together with Senator Specter. It is a pleasure also to be here with Tom Daschle who had one of the pioneering pieces of legislation in this area, and of course my congressman Doug Walgren from the 18th Congressional District. I used to represent him as a congressman at one time. As a matter of fact, on one occasion he, I think, wanted my job, and I unwillingly contested it and all good things come to he who keeps trying.

I obviously would like to spend our time together on your hearing to investigate the one million gallon oil spill into the Monongahela and Ohio River system last month. It is one that needs to be fully investigated, and we've got to act in Congress to prevent another spill like last month's.

The disaster that we all witnessed, let me say, would have been far worse had it not been for the extraordinary efforts of local leadership. I would like to single out above all the county and local officials led by the chairman of our county commissioners, Tom Forester, and his emergency response team, who not only led the way but who had extraordinary cooperation from all locals of government, State and local, and I am pleased to say the Federal Government as well. They reacted immediately, efficiently, and effectively to contain much of the spill. For that, a great many people downstream along the Ohio River can be grateful.

Nevertheless, we cannot rely on being protected solely by local officials and their heroic responses. We all saw how the old adage, if you will excuse me, oil and water do not mix, is as valid today as it every was. We also saw for a second adage that an ounce of prevention is worth a pound or maybe a ton of cure, in this case a million gallons of No. 2 diesel fuel.

As the committee, I am sure, Mr. Chairman, and you are well aware, that oil that fouled the Monongahela and Ohio Rivers threatened the drinking supplies of numerous communities along both rivers. The EPA has estimated that 830,000 people, more than double the population in my home town of Pittsburgh, will have had their drinking water affected before that black tide of polluted water is fully dissipated.

It is too early to tell what the long-term environmental impact will be, but Federal, State and local agencies are beginning now to assess how bad the damage will be to the river, the groundwater, the river beaches, the river wildlife, and so forth.

But, Mr. Chairman, it is not too early to take action to ensure that this can never happen again. So, as I mentioned at the outset, I, along with yourself, Senators Durenberger and Specter, introduced S. 2020, the Above Ground Storage Tank Spill Prevention Act of 1988. Our legislation is designed to prevent another environmental catastrophe like the one we have just witnessed in Western Pennsylvania.

Mr. Chairman, the Above Ground Storage Tank Spill Prevention Act will require EPA to promulgate national requirements con-

cerning an identifiable class of above ground storage tanks, specifically those tanks that pose a risk of catastrophic failure such as rupture or collapse. This class of tanks have the capacity to contain at least one million gallons of petroleum and are at least 30 years old or have been relocated or reconstructed.

It would require either EPA or an EPA-approved State program to implement and enforce these regulations. It would require owners or operators of tanks that experience a failure and spill their petroleum contents into the environment to take corrective action. And it would require States to compile an inventory of above ground storage tanks.

These new inspection and permitting requirements are intended to prevent environmental contamination through improved safeguards. Inspections by trained experts will reduce the risk that a tank would fail.

This legislation also addresses cleanup requirements in the event that the regulatory safeguards which we believe are very strong nonetheless fail to prevent a spill. Owners would also be required to take corrective action in response to a spill. Such corrective action would include cleaning up the environment, surface and ground water, surface and subsurface soils, and the air if necessary. As in this recent tragedy, supplying alternative drinking water sources may also be required.

Owners and operators would also be required to demonstrate that they have the financial ability to take all required corrective actions without delay. If an owner or operator cannot or does not take corrective action as required, the EPA or EPA-approved State program would be required under this bill to take corrective action and impose penalties.

In order to ensure that EPA or a State agency has immediate access to sufficient funds to cleanup a spill and assist injured people where there is not a responsible party, our bill allows the Leaking Underground Storage Tank Trust Fund to be used.

Mr. Chairman, I ask that the full text of my statement be placed in the record.

I would just like to observe that in the case of the oil spill there were many heros. It is, I think, true that although the Ashland Company may bear very substantial responsibility and liability for the failure of their tank, and that people at Ashland made some very serious mistakes in the way the tank was tested or rather they failed to test the tank, it has to also be said in fairness that in terms of cooperation, in terms of paying for the immediate cost of cleanup, the Ashland Oil Company did an exemplary job.

I mention that not only to give them their due, but to emphasize that it is not only necessary to have a better permitting and inspection program, but it is equally necessary in my judgment to make sure that we have a safety net that will protect our communities in case there is a spill where there is neither a responsible party nor a willing party as we did have in this case.

If I may say so, and Senator Specter can back me up on this, and Doug Walgren even more so because a lot of what I am about to say takes place in the Eighteenth Congressional District. Perhaps one of the reasons that our county and local officials are so good at handling environmental disasters such as the Election Day flood of

two years ago, such as the flooding in the North Hills and North Boroughs along Pine Creek, such as the tornadoes that we had about a year and a half ago or two years ago, such as this, is we've had too damn much practice.

[Senator Heinz' written statement follows:]

STATEMENT OF HON. JOHN HEINZ, U.S. SENATOR FROM THE STATE OF PENNSYLVANIA

Mr. Chairman, I applaud you for holding today's hearing to investigate the one million gallon diesal fuel spill on the Monongahela River last month. This catastrophe needs to be fully investigated. And Congress must act to prevent another spill like last month's on the Monongahela. And thank you, Mr. Chairman, and you, Mr. Durenberger, for joining me in introducing legislation designed to prevent spills from above ground storage tanks.

The disaster that we all witnessed would have been far worse were it not for the efforts of Tom Forester and the rest of the Allegheny County Commissioners, the local fire and police forces and other emergency management officials in Western Pennsylvania. Local authorities reacted immediately and efficiently to contain much of the spill. For that, a great many people downstream along the Ohio River can be grateful.

Nevertheless, we can't continue to rely on being protected solely by local officials heroic response. We all saw how true the old adage "oil and water don't mix" was. We also saw that an once of protection would have been worth a pound of cure—or in this case, 1 million gallons of No. 2 diesel fuel.

As the Committee is well aware, this million gallons of spilled diesel fuel fouled the Monongahela and Ohio rivers, which provide drinking water to numerous communities along the both rivers. As the comet-like head of the oil spill made its way down the rivers, many Pennsylvania, West Virginia, and Ohio communities—Robinson, North Fayette, West View, Midland, Toronto, Wheeling, and Sisterville, to name a few—were forced to close or heavily restrict their water intake. All-in-all, the EPA estimates that 830,000 people, more than double the population of Pittsburgh, will have had their drinking water affected before this black tide of polluted water is dissipated. It is too early to tell what the environmental impact will be. Federal, state and local agencies have just begun to assess how bad the damage will be to the river and ground water, to the river beaches and the river wildlife.

But, Mr. Chairman, it is not too early to take action to ensure that this can never happen again, and so I, along with you, Senators Durenberger, and Specter introcuced S. 2020, the Above Ground Storage Tank Spill Prevention Act of 1988. Our legislation is designed to prevent another environmental catastrophe like the one we have just witnessed in Western Pennsylvania.

Unfortunately, this environmental disaster made us aware of a gap in existing environmental regulation. The gap I speak of is lack of federal and state requirements to monitor the use and operation of above ground storage tanks that contain large volumes of liquid petroleum products. As I understand the existing requirements, state and local law may require an owner or operator of an above ground storage tank to obtain a permit for construction of the tank and to get an inspection of the tank after construction is complete. However, these regulations vary widely from locale-to-locale, the regulations are often difficult to enforce, technical expertise to do so may be lacking especially at the local level, and there is not a regular means of monitoring these tanks after these permits have been issued. In addition, the federal regulation applies only to containment plans and does not address tank integrity.

Experience has shown us that large capacity above ground storage tanks that have been operating for a long time or that have been altered through reconstruction or relocation need to be regulated to assure that the tanks retain their integrity.

Mr. Chairman, the Above Ground Storage Tank Spill Prevention Act of 1988 will require EPA to promulgate national requirements concerning an identifiable class of above ground storage tanks, specifically those tanks that pose a risk of castastrophic failure, such as rupture or collapse. This class of tanks have the capacity to contain at least one million gallons of petroleum and are at least 30 years old, or have been relocated, or reconstructed.

This legislation requires EPA to develop regulations applicable to this class of above ground storage tanks. It would require either EPA or an EPA-approved state program to implement and enforce these regulations. It would require owners or operators of tanks that experience a failure and spill their petroleum contents into the

environment to take corrective action. And, it would require states to compile an inventory of above ground storage tanks.

These regulations will ensure that the tanks are being properly maintained and continue to be used for the purpose for which the tanks were designed. These regulations are also intended to ensure that the party responsible for a spill follow EPA procedures and be financially responsible for a proper cleanup.

These new inspection and permitting requirements are intended to prevent environmental contamination through improved safeguards. Inspections by trained experts will reduce the risk that a tank would fail. Periodic reinspections and permit renewals will significantly contribute to reducing the risk of castastrophic failures. Requirements to properly close a tank at the end of its useful life will prevent spills from a tank that is not longer required to be monitored and inspected.

This legislation also addresses cleanup requirements in the event that the regulatory safeguards fail to prevent a spill. Under its provisions, a tank owner or operator must report a spill to the regulatory agency, either EPA or a state agency. Owners would also be required to take corrective action in response to a spill. Such corrective action would include cleaning up the environment—surface and ground water, surface and sub-surface soils, and the air, if necessary. As in this recent tragedy, supplying alternative drinking water sources may be required.

Owners and operators would also be required to demonstrate that they have the financial ability to take all required, the EPA or EPA-approved state would be required under this bill to take corrective action and impose penalties.

In order to ensure that EPA or a state agency has immediate access to sufficient funds to cleanup a spill and assist injured people where there is not a responsible party, our bill allows the Leaking Underground Storage Tank Trust Fund to be used. The "LUST" Trust Fund, financed by a tax on gasoline, will be sufficient to pay for the cleanup and compensation for leaks from underground storage tanks and catastrophic spills from above ground storage tanks.

As I said earlier, oil and water don't mix. Our legislation is carefully designed to see that we do everything possible to keep them apart. It corrects an existing gap in our envirnomental regulation, and in the unfortunate circumstance of another occurrence, provides for a quick, orderly, cleanup.

Mr. Chairman, I look forward to working closely with your committee to pass our bill as a means to prevent another environmental tragedy like the Ashland spill from happening again.

Senator MITCHELL. Thank you very much, Senator Heinz. Let me ask you and Senator Specter, I know you have very busy schedules, this is all so important to you, if there are any questions to be asked of you two would you prefer to have them asked now and then you could leave, and then we would proceed with Senator Daschle and Congressman Walgren, or would you like to stay for the rest of this panel?

Senator HEINZ. Sir, I am pleased to stay as long as you want because of the critical subject.

Senator MITCHELL. I know you are both very busy, and I wanted to make that option available to you.

Senator HEINZ. Thank you.

Senator MITCHELL. Then I will be pleased to hear now from Senator Daschle.

Senator SPECTER. Mr. Chairman, if I might conclude, I had not quite finished.

Senator MITCHELL. I am sorry, Senator Specter. Certainly.

Senator HEINZ. Thank you for yielding.

STATEMENT OF HON. ARLEN SPECTER, U.S. SENATOR FROM THE STATE OF PENNSYLVANIA—Continued

Senator SPECTER. I wanted to yield to my colleague to describe the legislation which is the centerpiece, but there are a few more comments that I think the committee would be interested about in terms of what happened on the scene.

The response was really good. Senator Heinz has made a comment about the response of the county officials. I had not gotten to that point in my testimony. I had started to mention what EPA and the State officials had done.

But as of Sunday afternoon when I was on the scene which was less than 24 hours after the incident had occurred, there were people moving to the scene in all directions. There was an environmental response team out of Edison, New Jersey expert in this particular line which was en route by Sunday afternoon. I believe they arrived there either late Sunday or on Monday.

Commander Miklavcic of the Coast Guard advised that the Coast Guard Atlantic Area Strike Team from Elizabeth City, North Carolina was en route and would monitor the action. So that the steps taken at a very early stage were really quite good.

On January 25, a week ago Monday, I visited the Ashland damage unit which was set up in the Pittsburgh suburbs to monitor claims which were presented by both individuals and by municipalities, and Ashland assembled a very professional group which had years of experience on similar kinds of spills. The individual in charge came from California, another individual came from Atlanta, Georgia, and they had assembled a team which was very experienced.

Now the jury is still out on what the final results are going to be, and I believe that we all have to monitor very closely all of the action taken by Ashland in terms of meeting its responsibility for cleanup and for damages both to individuals and to governmental units. As of this moment, it has an appearance of working out well, but it remains to be seen and it has to be monitored very closely. But that aspect of the response I think was good.

When we see the scope of the damage I think it will be important to make an evaluation as to whether others who have these kinds of tanks have sufficient resources like Ashland Oil does to make this kind of a response because the extent of the damage from one tank through so many States and so many communities points up how cataclysmic and extensive it can be. So there is going to have to be an evaluation as to that aspect.

With respect to the bill which Senator Heinz has described, I would urge the committee to carry forward the very prompt action which has characterized the movement so far. To have a hearing within 30 days after an event of this sort, approximately 30 days, is very unique. There are many aspects which we are going to have to study in greater detail. But I think pinpointing the area of preventative care so that these tanks are inspected to prevent this kind of an occurrence, it is very important that we act very, very promptly on that matter.

Thank you very much.

Senator MITCHELL. Thank you very much, Senator Specter.

Before recognizing Senator Daschle, I would like to note the presence of Senator Chafee, the ranking member of this subcommittee. Senator Chafee served with great distinction as chairman of this subcommittee for 6 years, and with Senator Stafford who was chairman of the full committee, is responsible for much important environmental legislation that has been enacted during this

decade. So we are very pleased to welcome Senator Chafee and ask if you have any opening statement.

Senator CHAFEE. I don't, Mr. Chairman. I want to congratulate you and thank you for responding so quickly on the request for a hearing on the measures that Senators Heinz and Specter and Daschle have submitted. I appreciate that. Thank you.

Senator MITCHELL. We thank you very much.

Senator Daschle has had experience in his own state, is the author of legislation on this subject area which is before this committee, I might say.

Senator, we look forward to hearing from you, as always.

STATEMENT OF HON. THOMAS A. DASCHLE, U.S. SENATOR FROM THE STATE OF SOUTH DAKOTA

Senator DASCHLE. Thank you, Mr. Chairman.

In the interest of brevity, I would like to submit my statement, ask unanimous consent that it be part of the record, and speak very briefly.

Senator MITCHELL. That will be done.

Senator DASCHLE. We commend you, as others have, for your leadership and your involvement in this whole effort. It is crucial that we consider this issue now.

A situation very similar to what has been described in Pennsylvania occurred in South Dakota in September of 1986. At that time, it was determined that 20,000 gallons of fuel had seeped into the ground water under a tank farm which was more than 40 years old, an above ground tank farm. As a result, homes and businesses were evacuated and a school had to be closed down permanently.

In March of 1987, an additional 10,000 gallons seeped into that same water supply. Since the first detection was determined, we have now found that there have been 11 leaks in that tank farm alone.

After millions of dollars of cleanup it has been estimated that that water supply will never, at least in our lifetime, be consumable again.

As we began to try to find relief for this situation what outraged me was the realization that those who own above ground storage tanks are not subject to the same laws and regulations as those who are storing tanks in below ground tanks. There is a huge loophole that completely eliminates these tanks from any meaningful regulatory responsibility.

With that realization, I came to the conclusion that we needed new legislation. Last March, I introduced the Tank Storage Safety Act of 1987. That bill has a very simple goal. It requires the EPA, to promulgate regulations to force those who have above ground storage tanks to implemant prevention, detection, and control programs that are now required of those who own below ground storage tanks. It requires performance standards and maintenance standards, regular inspection of the tanks, regardless of age. It requires a very tight detection system for all of those tanks that are currently on line. And finally, it requires the EPA to control the problems that exist once a spill has been found.

I might say that this bill differs in one very significant way with the bill that has now been described, and that is that my bill does not exempt tanks of less than one million gallons. If that bill had been enacted, and that one million gallon exemption was currently part of law, 70 percent of the tanks at the facility which caused the series of petroleum spills in my community would still be exempt from the law. I think that is too much.

But there are many more similarities than there are dissimilarities between the bill introduced by Senators Specter and Heinz and my bill. I think that it is important that we realize that above ground tanks are just as detrimental to the community, at least potentially, as those below ground and ought to be subject to similar rules and regulations with regard to prevention, detection and control.

It is crucial that we address this issue. I think it is crucial that, before another situation like we saw in Pennsylvania or in South Dakota comes about, we have the regulatory guidelines and the enforcement methods necessary to deal with a similar situation a lot more effectively. That's my message, and I am very hopeful that in a bipartisan way we can address this problem effectively.

[Senator Daschle's written statement follows:]

STATEMENT OF TOM DASCHLE, U.S. SENATOR FROM THE STATE OF SOUTH DAKOTA

I want to thank Chairman Mitchell and other members of this Subcommittee for holding these important hearings today. If there is a silver lining in the dark cloud over the Monongahela Valley and Sioux Falls in the wake of recent petroleum discharges, it is that this Subcommittee is meeting today to figure out ways to prevent future above-ground tank spills from occurring. I am hopeful that this hearing will mark the first step in closing a dangerous loophole in federal environmental law, which currently leaves the public and the environment largely unprotected from potential leaks and spills from thousands of above-ground hazardous liquid storage tanks across the nation.

When I watched the news accounts of the tragic Floreffe spill flash across my television screen last month, I got a chilling sense of deja vu. In the past two years, I have had the unfortunate experience of watching the citizens of Sioux Falls, South Dakota, suffer the consequences of a series of smaller leaks and spills from an undermaintained, forty-year-old hazardous liquid tank farm. The discharges ultimately caused the permanent condemnation of the Hayward Elementary School and the destruction of our precious groundwater supply for generations to come.

The Sioux Falls and Pittsburgh spills are similar in many ways. Significantly, the two discharges both resulted from the failure of equipment, first constructed in the 1940s, that had not been adequately tested. Of course, they also are alike in that neither tank was subject to the RCRA Subsection I regulatory program in place for underground hazardous liquid storage tanks.

They are dissimilar in other ways, however, and it is important for the Subcommittee to understand those differences and their regulatory consequences. While the Sioux Falls discharges were relatively slow leaks from a long-neglected tank farm, having released gasoline for weeks at a time unbeknownst to the public, the Pittsburgh spill was more dramatic in the immediacy of its impact. The Sioux Falls leaks destroyed an underground water source, while the Pittsburgh spill went directly into surface water on the Monongahela River.

From a regulatory point of view, these differences are important. First, because the Pittsburgh tank posed a threat to surface water, the tank was theoretically monitored closely under Clean Water Act Section 311 authority. Although it appears the Section 311 authority is inadequate to prevent many spills, at least in Pittsburgh the authority existed, under the Clean Water Act, to dispatch EPA experts immediately to oversee the clean-up of the area. In Sioux Falls, we were not so fortunate, and our experiences point out the inadequacy of the Section 311 controls.

When I contacted the EPA regional office in the wake of the Sioux Falls spills, I was told that the EPA could not use Clean Water Act authority to dispatch EPA staff to the site unless hazardous liquids appeared in local rivers, lakes, or ponds.

Since the approximately 30,000 gallons had seeped directly into our groundwater, rather than into navigable surface water, EPA claimed it had no statutory authority to provide even minimum technical support to inexperienced state and local officials in the oversight of the spill clean-up. Ultimately, it took a belated ruling from the Administrator of the EPA that invoked emergency discretionary powers to allow the regional office to provide minimum oversight in the clean-up.

Even more disturbing than EPA's inability to help South Dakota in the clean-up is its lack of authority to prevent future spills. While opponents of my bill (S. 899) claim that Section 311 of the Clean Water Act provides ample protection against potential above-ground tank problems, recent history clearly proves that contention wrong. The Section 311 regulations apply to facilities which could reasonably be expected to discharge oil into navigable water. Since tanks at the Sioux Falls facility posed no threat to navigable surface waters, EPA inspections of the facility were simply pro forma according to state officials. In fact, I am advised that tank inspections are sometimes conducted from planes flying over facilities. I am further advised that insides of tanks, intake valves, and tank seams are never inspected by the EPA under the Section 311 program.

The fact is that the existing Clean Water Act authority has proven woefully inadequate in forcing tank owners to maintain their facilities in a reasonable manner. When the residents of the Hayward neighborhood asked the EPA at a town meeting I held how it could allow this obviously rusted tank farm to go unregulated for so many years, EPA replied that it had no statutory authority to hold tank owners to a reasonable maintenance schedule or to inspect the inside of the rusted, forty-year-old tanks. EPA should have this authority.

While it is true that it is easier to prevent leaks from above-ground tanks than underground tanks, we must recognize that leaks and spills *DO* occur from above-ground tanks with considerable frequency, and the effect of a hazardous liquid spill is disastrous no matter the source of the discharge. This is a fact that is not recognized in current environmental law.

I strongly urge the Committee on Environment and Public Works to address this issue this year in the context of RCRA oversight. I appear today not so much to advocate S. 899 over other proposals as I do to urge the Subcommittee to establish some type of comprehensive regulatory program which will help prevent, detect, and control future above-ground tank spills. I welcome the participation of my good friends Senators Durenberger, Specter, and Heinz in this discussion. I hope the Subcommittee will review all of the proposals and compile a strong regulatory program for above-ground storage tanks which can be included in the RCRA reauthorization bill this spring.

I do want to caution the Subcommittee, however, about proposals that leave above-ground tanks of capacities smaller than one million gallons unregulated. Such an exemption for thousands of tanks nationwide would leave a significant portion of the current regulatory loophole open. In Sioux Falls, for example, over 70 percent of the tanks at the beleaguered William Pipeline facility would remain unregulated if the small tank exemption were enacted.

The premise of this exemption, that smaller tanks are less dangerous than the larger tanks, is false. I am advised that many smaller tanks are typically used to store materials such as jet fuel, fertilizers, and various other types of toxic substances—materials which actually pose a more serious public health threat than petroleum products stored in the large tanks. Moreover, in Sioux Falls we have learned that a petroleum spill of just a few thousand gallons is enough to permanently contaminate underground drinking water supplies. Hazardous liquids are obviously highly dangerous when released in amounts smaller than one million gallons, so it is critical that federal legislation not leave a large loophole for smaller tanks.

Mr. Chairman, no one can say for certain that the inclusion of above-ground tanks in the RCRA program would have insured that the Sioux Falls tanks would have been properly maintained and monitored, or that the forty-year-old relocated tank in Pittsburgh would have been properly tested prior to being filled with petroleum. It is safe to say, however, that a responsible program of regulation would prevent many future above-ground tank disasters and spare others the long-term problems my constituents will face well into the twenty-first century.

If any of my colleagues doubt the need for regulation of above-ground storage tanks similar to underground tank regulation under RCRA, I invite them to come with me to Sioux Falls or Pittsburgh. To those who feel it is asking too much of a tank owner to maintain his tank facility, I would show the Hayward Elementary School that now sits empty as an eerie memorial to the spills we have experienced as a result of corporate neglect. I would also show them the place where recovery

equipment will work around the clock for decades to try to make the groundwater once again consumable. I can assure the Subcommittee that the people of the Monongahela Valley and southeastern South Dakota support the content of our modest legislative proposals.

Thank you.

Senator MITCHELL. Thank you very much, Senator, for a very forceful statement.

I am very pleased to welcome Representative Walgren. This is obviously a matter of great interest and concern to you, Representative Walgren, and we welcome you and look forward to your statement.

STATEMENT OF HON. DOUG WALGREN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF PENNSYLVANIA

Mr. WALGREN. Thank you very much, Mr. Chairman. I appreciate the opportunity to testify on behalf of my constituents before your committee here this morning along with both Senators from my State and Senator Daschle.

I particularly want to commend you, Mr. Chairman, for the promptness of this hearing and the attention that your committee is giving this. Certainly that promptness testifies to the scale of this incident and the kind of damage that can be done from this sort of release. There are many places where the discharge would not be dissipated as it was in this instance and would damage and ruin an aquifer forever. We are talking about something very serious here.

Last week, the House Subcommittee on Transportation, Tourism and Hazardous Materials held a hearing in Pittsburgh at my request, and through its chairman, Tom Luken, and the chairman of the full Commerce Committee, Congressman Dingell, we on the House side are looking hard at what the appropriate Federal response to this spill should be and what the appropriate regulations should be that are needed to prevent future disasters.

As has been said, on January 2, almost four million gallons of No. 2 diesel fuel oil gushed from the collapse of an above-ground storage tank operated by Ashland Oil Company near Pittsburgh. This was a 40-year-old tank that had been cut apart and moved from Cleveland and reconstructed in the Pittsburgh area. It was being filled for the first time at the time it collapsed. One million gallons poured into the Monongahela River. Only something less than 20 percent of that has been recovered. The rest is gone forever.

The slick from that collapse as of yesterday had reached Evansville, Indiana. In the immediate aftermath more than 1,000 people had to be evacuated from their homes because of the potential fire, and the drinking water supplies of at least one million people have been affected. Some communities in my area and communities of over 500,000 people were without water for eight days. Businesses in Pittsburgh had to close, and of course, the impact on fish and waterfowl that you mentioned, Mr. Chairman, were direct. Those effects may be with us for years.

Having been there immediately after that accident, I too want to underscore the incredibly strong reaction of many of the local and State response agencies who worked day and night in what was lit-

erally a heroic effort to limit this damage, and the reaction of the public was something that cannot be underestimated. It was their conservation which essentially prevented massive dislocation.

But I was dismayed to learn how inadequate Federal regulation in this area is. First, there is virtually no regulation of the structural strength or the integrity that is obviously required for tank safety. The regulations in this area are voluntary industry practices.

Second, there are regulations for spill containment, but their enforcement appears to be almost nonexistent. Although regulations provide for containment plans, no one looks for the plans or at the plans until after an accident. And although EPA apparently does some field inspection, at the rate they do that field inspection, it will literally be a thousand years before we have covered the presently existing above-ground tanks across the country. And despite their finding in their initial explorations, as many as 20 percent of above-ground tanks have inadequate spill containment plans according to present standards.

With 600,000 such tanks across the country, EPA would estimate that more than 100,000 above-ground tanks have inadequate safeguards and put the public in those areas at risk.

It goes without saying, of course, that EPA never inspected the spill containment of this tank in Allegheny County.

Perhaps more importantly, spill containment regulations are broad and vague and leaving each operator essentially, each company by company, or each family by family in some instances, each operator essentially in the role of setting its own standards, policing its own operations and satisfying itself with its own inspections with respect to tank structure.

Industry standards on tank structure are generally good guidelines if followed, but they are voluntary and they give little assurance to the public of safe operations. If there is a failure, the legal consequences are minimal. The Federal Government can only impose fines that are hardly on the scale of the damage that is incurred by communities, governments, individuals and natural resources, something in the range of $5,000 per day of violation.

Two other issues emerged from our Pittsburgh hearing. First, the Federal leadership of the cleanup, although individuals meant well, certainly has to be questioned. While it appears that the spill was promptly reported to the National Response Center and the Federal agencies involved and followed the prescribed steps, the EPA, the lead Federal agency, did not arrive on the scene until 13 hours after the spill. The Coast Guard and the EPA did not decide between themselves which agency was to accept the real responsibility for directing the cleanup and emergency response until 18 hours after the spill. The first oil control boom of Ashland's primary contractor was not in the water until 15 hours after the spill.

Now it is understandable that a sudden massive spill like this would create confusion, but prompt decisionmaking to decide which agency of government is to be responsible in an emergency response is obviously one of the most critical elements we have to defend ourselves with. In this instance it was very questionable.

Second, we have learned that the U.S. Coast Guard is required to maintain a current Spill Cleanup Inventory known as SKIM. This

is an inventory so that those in the position of responding to an emergency can quickly find out what type of cleanup equipment is available and where it is. The Coast Guard indicated in this case that they had 12 vacuum trucks on hand; they needed 200.

In retrospect, we find out that the national equipment inventory has been defunct for the last several years for budgetary reasons. The Coast Guard decided that this inventory did not have the priority as a national function.

In addition, it appears that the cleanup equipment that was known is primarily designed for spills in open water, of very questionable use in rivers where there is a fast current. The Coast Guard told me that the Gulf Strike Force, one of two in the Nation, has no equipment suitable for rivers. Finally, the Coast Guard budget in 1986 was devoting only seven percent to emergency environmental response, down from 14 percent in 1979.

I am working with Congressman Dingell and with Congressman Luken in suggesting legislation on the House side to address all the inadequacies that have surfaced from this accident. In my view we should develop a bill that would require standards and regulation for all above-ground storage tanks to protect public health and safety. The standards should apply to the safety of siting, the safety of the design, the safety of construction. They should apply to testing and inspection.

The regulations should provide a measure of assurance that each facility has prepared adequately to handle even the most unlikely events.

Additionally, EPA should require spill prevention and containment systems for all tanks that are designed to catch and hold all spills, even catastrophic spills. A facility should not be allowed to operate without an approved spill containment system, a plan approved by an independent entity.

Enforcement of these standards and regulations should be built on the strengths of both State and Federal governments. The spill containment systems should have to be inspected by a professional engineer independent of the company owning the tanks. States should inspect tanks and spill containment systems for compliance with Federal standards.

An industry-financed fund should provide funds for State enforcement. I hope to propose legislation that would clarify the liability of the responsible party, making it clear that those responsible for spills must pay for replacement water supplies and water equipment needed to treat water during an emergency.

I think we should underscore the fact that Federal legislation should not pre-empt State programs that are more stringent.

Finally, we should provide for research on the strength of tank construction and research and development of the most effective cleanup equipment that can handle river spills. Apparently we have not really addressed that problem specifically.

I appreciate very much the opportunity to join in your hearing and look forward to working on the House side in hopes that this Congress can develop an effective response to this accident.

Senator MITCHELL. Thank you very much, Representative Walgren. We will now go to questions.

Senator Baucus, do you have any questions of the members of this panel?

Senator BAUCUS. Yes. Thank you, Mr. Chairman.

The first question I have is whether there should be any cutoff level. Senator Heinz' bill has a one million gallon exemption. Senator Daschle, if he didn't state, certainly implied his disagreement with that one million gallon exemption.

The question I would like to ask each of the panelists is, should there be an exemption or a cutoff level, and if so, at what level?

Senator DASCHLE. Max, maybe we can just go down the table here. I feel that there ought to be some practicality involved here, and I suppose the EPA ought to be given some discretion. But I think to exempt all tanks below one million gallons would really disallow too many of the tanks that are posing the problems today.

As I said, in South Dakota, that would exempt 70 percent of the tanks at the facility that detrimentally affected our area. So we don't want to provide that gaping loophole, and yet we want to preserve some degree of practicality.

Senator BAUCUS. I was wondering if anyone else on the panel has any feelings about a cutoff.

Senator HEINZ. Mr. Chairman, I do have some very definite feelings about that. In S. 2020 we mandate that EPA stipulate standards and inspection procedures for one million gallon or above tanks irregardless of where they are, even if they are in the middle of the Mojave Desert. But we also tell EPA in section 9029 and following of our bill, down in the fine print, that we want them to quickly study and make recommendations to Congress regarding whether we should give them the authority to promulgate regulations for smaller tanks if they believe those tanks pose a danger either to ground water or to underground water drinking supplies. In that way we believe we address the environmental question.

However, Mr. Chairman, I would support a more direct approach in place of the provisions contained in S. 2020, as introduced. S. 2020 should be modified to allow EPA to set a cutoff level different from 1 million gallons if EPA's study recommends that some other level is more appropriate. Because no inventory of above ground storage tanks is available, 1 million gallons appears to be an appropriate level in the interim period between enactment of the bill and publication of EPA's recommendations and regulations.

If EPA finds that above ground storage tanks impose a threat to the environment, primarily drinking water and ground water, to the extent that the traditional practices of spill containment are not able to contain a catastrophic tank failure, EPA should have full authority to set standards to control threats. For example, if EPA finds that tanks with a capacity of less than 1 million gallons located near a drinking water supply impose a threat to those drinking water supplies, EPA should have the authority to regulate such tanks. Inversely, if EPA finds that tanks with a capacity much greater than 1 million gallons and located further enough away from any drinking water supply so that a catastrophic failure of such a tank would impose no threat, then EPA should have the authority to opt to not regulate such tanks.

On a similar issue, S. 2020 directs EPA to study and recommend whether above ground storage tanks that contain regulated sub-

stances should be covered by the regulations. I would support an amendment to S. 2020 that would allow EPA to regulate tanks that contain regulated substances if EPA finds that such tanks, unregulated, impose a threat to the environment, primarily, drinking water supplies.

Senator BAUCUS. I asked the question because it seems to me there has to be some appropriate level here. A million gallons seems a bit high, frankly, to me; zero is a bit low.

I think currently in the law there is a 1,100 gallon exemption for underground storage.

Senator DASCHLE. That's correct.

Senator BAUCUS. Basically it is because most farm tanks are about 1,000 gallons. So I think it is set at 1,100 in case there is a slight mistake there.

Does that sound about right for above ground tanks, 1,100 gallons?

Senator DASCHLE. I think you cause a bureaucratic and regulatory nightmare if you are out on every one of those farms trying to regulate them the same way you do a large, commercial tank farm.

Senator BAUCUS. I agree. That's why I asked the question.

Senator DASCHLE. The 1,100 gallon floor makes a great deal of sense to me.

Senator HEINZ. Let me give you the rationale for starting where we started. If you consider the circumstances under which we had this catastrophic failure, in the brief space of 10 seconds or less this tank lost its total structural integrity and what were four million gallons rushed out like a giant tidal wave and overwhelmed the containment.

My theory which I get from physicists is that in most tank farms if you have smaller tanks rupture, the physics of those tanks will not be such as to overwhelm the containment which will be designed generally to accommodate this kind of catastrophic collapse.

Tom Daschle addresses, in his bill, what is an even more serious problem because it is a silent hidden problem, and that is, leaks from hidden tanks, underground storage tanks. I think there is a difference.

The reason I am delighted that the committee is holding hearings is that we are legislators, not physicists, not engineers, not EPA experts. In the final analysis, we have chosen to defer ultimately to the EPA experts on exactly what size of tank for the purpose of above ground storage should be monitored.

Senator BAUCUS. As I hear you, your bill then is addressed primarily to ruptures, not to leaks?

Senator HEINZ. That is correct.

Senator BAUCUS. It seems to me if we are having a hearing on this subject, we should also address above ground tank leaks. And if we address above ground tank leaks, it seems to me we ought to have some cutoff level too.

I am wondering on that score whether you would agree that something in the ball park of an 1,100 gallon cutoff makes sense.

Senator HEINZ. I haven't addressed the specific 1,100 gallon level, but we have required an inventory to be taken of all tanks. There is no national inventory of all tanks. We have required that an in-

ventory be taken so that we know what we are dealing with. Right now we don't.

Senator BAUCUS. Thank you.

Senator SPECTER. Senator Baucus, if I might make just a brief comment there. I believe the one million figure is an appropriate one in terms of a mandate, and then it's really up to EPA to take the matter further. And there has to be a distinction between a structural collapse problem and a leak problem.

I do not know if it is possible to have inspections which will prevent leaks because leaks occur when there is a gradual rusting through or a very slow process which results in some leak which is minor. It is really a very different issue from that of a total collapse which was present here, just to go out a few hours after the event and see the structural siding just flat on the ground.

There is another issue which we have to confront here, and that is the resources for conducting these kinds of inspections. EPA is going to have to undertake that, and EPA has limited resources and limited funds. There is going to have to be a sharp evaluation as to EPA's other responsibilities and the adequacy of its funding.

So I don't think that we can sit here today or in the preliminary stages of tackling this problem and really give a categorical answer.

I think it also depends upon the locale. This particular tank was close to the Monongahela River. If other tanks are farther away from this kind of a major water supply, it is different. In terms of exposure to underground water, candidly, I'm not sure just what kind of a problem that poses.

Senator BAUCUS. I hear you, and I appreciate that. My time is up. But I don't know if that is going to answer Senator Daschle's problem in South Dakota. That was a leak situation.

Senator HEINZ. Mr. Chairman, if I may just respond to Senator Baucus, I think it is fair to say, Senator Baucus, that our two bills address two different kinds of problems.

Senator BAUCUS. That's correct.

Senator HEINZ. I don't think they are, however, antagonistic. We are looking at above ground problems from our vantage point, and having been too close to an exploding tank in effect in Western Pennsylvania; Tom is looking at an entire aquifer that has been destroyed. It doesn't mean that one or the other of us are right. Maybe we are both right.

Senator BAUCUS. That's a good solution. Thank you very much.

Senator MITCHELL. Thank you, Senator Baucus.

Senator Chafee.

Senator CHAFEE. I have no questions. I do want to note that one of the problems we are running into is the problem that Senator Specter outlined, namely we are cutting back on the funding for EPA. EPA took a very deep cut last year, at the same time we are constantly increasing the responsibilities that the agency has.

I noted that in Pennsylvania, or at least in that immediate area, they actually had, at least from the news stories here, they actually had an inspection system. Fire Marshall Martin Jacobs had referred to the case saying had Ashland formally applied for a permit, inspectors would have tested the site's geology and required the tank to pass all the State code safety requirements.

So in this particular case, through inadvertence or lack of knowledge or something, the company had not applied for the proper permits or what permits it applied for weren't the total ones, whatever it was. I am not familiar enough with the situation.

So we can have statutes on the books, but if they are not applied or not followed it doesn't get us very far. It may well be that EPA's authority should be extended, but we've got to realize that many States and localities apparently already have some legislation on their books dealing with this matter.

Senator MITCHELL. I gather that wasn't a question.

Senator CHAFEE. No. That's not a question, that's just a pondering thought.

Senator MITCHELL. As always, it was pertinent, and we thank you for it.

We will now call on Senator Stafford.

Senator STAFFORD. Thank you, Mr. Chairman.

I think I am going to start with a comment also. I would join what Senator Chafee has said as far as EPA and its funding is concerned. If the agency is to carry out all of the functions we are going to saddle it with, it simply has to have more money. So I concur with what Senator Chafee has said there.

But I also want to focus on the Coast Guard because the Coast Guard also has suffered drops in its funding. Here we are asking the Coast Guard to maintain the Nation's navigational aids on our navigable waters, we are asking them to take part in the so-called drug war, and to conduct rescue missions for yachtsmen who get in trouble. On top of all of that, if we ask them to be further involved in oil spills, once again I think maybe they should be, but I also think that as we add on responsibilities we have to recognize that the Coast Guard as well as EPA is going to have to have more money to be able to do the job and have the equipment necessary to carry it out. So that's my comment.

The question is, I notice Mr. Walgren, that you made a statement with respect to allowing States to have more stringent regulations than the Federal Government might provide, something that I agree with and I think the chairman of this subcommittee does also.

I wonder if our three distinguished colleagues from the Senate oppose that viewpoint or share it? I would ask if they could comment on it.

Senator SPECTER. I agree.

Senator STAFFORD. That's one. How about you?

Senator CHAFEE. I think the answer should be, "I agree" by everybody.

Senator STAFFORD. You agree and Senator Daschle agrees. Now if we can get Senator Heinz's attention, maybe we can get him to agree.

Senator HEINZ. Yes.

Senator STAFFORD. The question is, Senator Heinz, do you agree that States should be allowed to have more stringent regulations with regard to tank farms than the Federal Government might provide if the States so wish.

Senator HEINZ. Mr. Chairman, if I may respond, yes, I do. One of the reasons we have drafted our legislation the way we have,

which is to permit States to take primary, indeed to encourage States to take primacy is really, by the way, not only to help address that problem, but to address Senator Chafee's and Senator Specter's concerns about the lack of adequate funds for EPA. It is very necessary that we get the States and through the States, the local people involved in doing this job. So I think the answer is in the affirmative to your question.

Senator STAFFORD. Thank you very much. It is nice to find four of our colleagues in agreement.

Senator MITCHELL. Thank you, Mr. Chairman.

Senator Pressler.

OPENING STATEMENT OF HON. LARRY PRESSLER, U.S. SENATOR FROM THE STATE OF SOUTH DAKOTA

Senator PRESSLER. Thank you, and I thank my colleagues very much. I have a statement I would like to place in the record. I know my colleague, Senator Daschle, has covered part of the South Dakota situation.

[Senator Pressler's statement follows:]

OPENING STATEMENT OF HON. LARRY PRESSLER, U.S. SENATOR FROM THE STATE OF SOUTH DAKOTA

Mr. Chairman, I commend you for scheduling this timely hearing on the recent oil spill near Pittsburg.

In the last couple of years my home state of South Dakota has experienced several gasoline leaks from storage tanks. These leaks were not as apparent and devastating as the recent leak at the Ashland Oil facility, but they threatened public health and the water supply. The largest leak in Sioux Falls, South Dakota resulted in the closing of an elementary school. In an effort to address this problem, I joined my colleague, Senator Durenburger, in sponsoring the Pipeline Safety Act of 1987. The Senate Commerce Committee has held hearing on that legislation.

Legislation has been introduced to address the Ashland Oil leak. We need to examine all of these accidents and either correct the inadequacies in the current program administratively or with new legislation.

Mr. Chairman I look forward to hearing the witnesses and I have several questions for the witnesses.

Senator PRESSLER. Senator Durenberger and I have another piece of legislation, the Pipeline Safety Act of 1987, I guess it will have to be 1988 now. It is over in the Commerce Committee. But I imagine that all these bills will be blended together, amalgamated.

But something must be done. Our people are crying out for safety. In an age when we have so much technology we certainly can make this area safe, and our citizens are demanding it. We even have typewriters that will beep at you if you misspell a word now. Certainly there can be better signals given when something is going wrong, there can be better construction and so forth.

Our particular legislation is funded by a fee on the companies. It would not increase the deficit. However, we are open to suggestions. That particular piece of legislation is in the Commerce Committee.

We all need to examine all of these accidents and either correct the inadequacies in the current program administratively or with new legislation. I am afraid it is going to have to be done with new legislation.

But I think our people are crying out for this. They want safety. They certainly aren't down on the companies. They just want this

problem solved. They know that something has to be done, and they know that the technology is available.

So I am joining in cosponsoring this legislation and will work closely with the members. I commend my colleagues here today who have spoken so well.

Senator MITCHELL. Thank you very much, Senator Pressler.

My thanks also to our colleagues. This is a serious problem. It requires a responsible and measured reaction on the part of we as legislators and policy makers. We look forward to working with all of you in providing that response.

Thank you very much for your testimony here today.

Our next witness is Mr. Richard Golob, Director of the World Information Systems, Cambridge, Massachusetts. Has Mr. Golob arrived yet? I know his plane was initially delayed. Evidently he has not yet arrived, so we will proceed to the succeeding witness who is Mr. John Hall, the Chief Executive Officer of the Ashland Oil Company.

Mr. Hall, welcome. You probably thought that since the hearing started at 10 and you are the chief executive officer of the company involved that you might get to say something at 10. But as you can see, we moved promptly to you by 11. So we look forward to your testimony. This is a very serious matter for your company, yourself, and the people of the area involved. We welcome you and look forward to hearing your testimony here today.

STATEMENT OF JOHN R. HALL, CHAIRMAN AND CHIEF EXECUTIVE OFFICER, ASHLAND OIL, INC.

Mr. HALL. Thank you, Mr. Chairman.

I appreciate the opportunity to represent Ashland Oil before the committee. My statement today will briefly describe the recent oil spill incident. I've given a more detailed statement which is available for the record.

Senator MITCHELL. That will be placed in the record in its entirety, Mr. Hall.

Mr. HALL. Thank you, sir.

On Saturday, January 2, a storage tank at Ashland's Floreffe, Pennsylvania product terminal collapsed suddenly and explosively releasing approximately 3.9 million gallons of diesel fuel. The collapse sent a surge of product over the containment dikes allowing an estimated 750,000 gallons to escape through nearby storm sewers into the Monongahela River.

Despite our best efforts to contain it, a large portion of this amount subsequently flowed down the Monongahela and entered the Ohio River affecting the water supply of suburban Pittsburgh and several communities downstream.

Since the spill Ashland has spared no effort or expense to mitigate its effects. We immediately notified the proper authorities allowing their participation at the earliest possible time.

Working in conjunction with the U.S. EPA and Coast Guard, we acted promptly in an effort to contain and control the spill. My information is a little different from the Congressman's in that I believe our local contractor had booms in the river four hours after the spill.

Ashland employees and contractors deployed floating booms, deflection barges, oil suction materials, skimming barges and vacuum trucks to retrieve oil from the water, the shoreline and the terminal.

The cleanup efforts have resulted in the recapture of about 3.15 million gallons from the terminal area and the rivers. Secondary cleanup efforts are expected to continue for the next three months.

Working in cooperation with the local water authorities we made extensive efforts to help them maintain or restore normal water service as quickly as possible. For example, the city of Wheeling, West Virginia was able to maintain service by relying on 4.8 million gallons of water drawn from Wheeling Creek and ferried in by Ashland barges. Huntington, West Virginia maintained uninterrupted service by drawing water from the Guyandotte River using pumps and hoses provided at Ashland's expense.

In all, Ashland provided assistance to more than 17 communities, although no community downstream from Sistersville, West Virginia experienced water shortages.

Ashland quickly accepted responsibility and promised to pay for all cleanup costs. We set up a service office in Pittsburgh to oversee claims processing and to coordinate with government agencies. A claims adjusting firm established offices in Pittsburgh and Steubenville, Ohio to handle claims from businesses and individuals.

We have already begun to reimburse government agencies involved in the cleanup and have made partial advance payments of expenses, for example, $210,000 to Allegheny County, and $165,000 to the Western Pennsylvania Water Company. Additional payments will be made as soon as claims are received, reviewed and processed by the Pennsylvania Emergency Management Agency.

Reimbursement has also been made to local relief organizations. We've also sent letters to families who were evacuated the evening of the spill and invited them to submit their expenses to us.

Mindful of the long term environmental impact, we have retained ERT, an environmental consulting firm, and Battelle to advise us on the long term impact the spill will have on the environment.

In addition, we have given a $250,000 grant to the University of Pittsburgh Center for Hazardous Material Research to also permit them to evaluate the long term impact on the river.

From the beginning we have made every effort to speak candidly to the news media and all representatives of various Federal, State, county, and other governments. I can assure you that our candor and cooperation will continue.

Ashland is conducting an internal review of the circumstances of the tank's construction and collapse. And I think it is important for me to point out that this is probably only the sixth or seventh catastrophic collapse of a tank of this type that has occurred in the industry.

Because of its preeminent scientific capability, we have engaged Battelle Memorial Institute to conduct an independent investigation.

It has become apparent to us through our internal review that optimal procedures for obtaining permits, constructing and testing the tank were not followed, and some questionable decisions were

made by our employees who were involved in the construction of the tank. However, we will not know until we see the Battelle report why the tank collapsed or whether any of these questionable decisions contributed to the collapse of the tank.

We have pledged to make public the results of Battelle's investigation. Until that investigation is complete, we believe questions about the cause of the collapse would require speculation.

If I may take just another minute, I would like to point out that examination of the steel and other components will be conducted also by Dr. Richard Wright of the National Bureau of Standards at Congressman Walgren's request.

Senator MITCHELL. You take whatever time you feel necessary, Mr. Hall.

Mr. HALL. Thank you, sir.

A number of other State and Federal agencies are looking into the accident, and we have been cooperating fully with those reviews.

In closing, let me say that Ashland Oil has operated in the Ohio River Valley for more than 60 years without an incident of this type, and we are proud of that record. We are embarrassed by this incident, but we are proud of the valiant efforts that our employees have made in containing the spill and in helping to keep the water supplies going.

We hope you will agree that Ashland has handled this unfortunate incident in a responsible fashion. And let me assure you that we intend to continue to do so.

I appreciate you allowing me to make this statement, and I will be glad to try to answer any questions that you might have.

Senator MITCHELL. Mr. Hall, thank you very much for coming before us today. I appreciate your willingness to testify and to respond to questions, as I am sure all of the members of the committee do. You have been very candid about the errors or possible errors made by your company.

In your written statement which we have placed in the record you stated that Ashland personnel did not secure a written permit before constructing the tank. You stated that the tank was reconstructed at the Floreffe site using steel more than 40 years old which previously had been used in a tank in an Ashland facility near Cleveland. You stated that Ashland employees used an alternate testing method rather than the preferred full hydrostatic test, and you further stated that Ashland's senior management learned just a short time ago that x rays taken during the construction process revealed a number of possibly defective welds in the tank, although you have since been advised that none of the x rays involved welds in the area where the rupture is believed to have begun.

You have been remarkably candid and forthcoming after the spill occurred, and I think you deserve to be commended for that. At the same time, of course, you were self critical, and I am certain you recognize that criticism is justified by others of the actions prior to the spill.

My first question to you is, until now the EPA regulations for control of spills from tanks worked on the functional equivalent of

the honor system. You are required to develop a control plan but not required to have EPA or the State approve the plan.

Based on your experience, which is very unfortunate for you and many other people, do you believe that clearer more specific Federal or State requirements, and most importantly, thorough agency review would help you and others in possibly preventing something like this from occurring in the future?

Mr. HALL. I've given a lot of thought, sir, to what might we have done better. The API Standard 650 is very thorough, and I think you will find it is a good standard if followed. In defense of our people, I would suggest that API Standard 650 could be a little clearer on the relocation of old tanks. And we have suggested to Mr. DiBona, the president of the API, that he look at perhaps clarifying the API 650 with regard to the movement of older tanks.

One possibility would be to require a professional engineer in the company to certify that the tank has been constructed in accordance with API 650 and has been tested in accordance with API 650, and to be required to have that certification in your file before the tank is put into service.

Senator MITCHELL. Mr. Hall, one of the issues that is debated almost every time this committee meets and whenever we consider environmental legislation is the relative cost and benefit of environmental protection. It is always easy to specifically tabulate the cost of protecting the environment. It is usually difficult to assign a specific value to the benefits of that.

Now the steps taken by the Ashland employees which you, yourself, criticized were obviously not taken with malicious intent. No employee did this in an effort to have a tank collapse; it clearly was an effort to save money. You use old steel instead of new steel, you do certain things that cost less than otherwise.

My question to you is, have you spent more money for cleanup and damages associated with this spill than you saved by the practices taken with respect to the old tank?

Mr. HALL. By a very significant margin, sir.

Senator MITCHELL. So in a case where damage occurred, it is very clear that prudent environmentally protective action is far less expensive than the type of action which could cause this problem. Would you agree with that?

Mr. HALL. I'm not sure I quite understand the point, sir.

Senator MITCHELL. Well, if your company had taken appropriate steps with respect to this tank, it is at least possible if not likely that the spill would not have occurred. And while you would have spent a little more money, it would have been far less than you have to spend now in cleanup and damages.

Mr. HALL. Certainly should the inspection or investigation by Battelle show that any of those decisions caused the accident, it certainly, what you are saying would be true.

Senator MITCHELL. I am not asking you here today to acknowledge a causal relationship between the specific errors identified and the ultimate rupture and damage that followed, although that is something that will be determined in another forum obviously with a great deal more information than is presented here.

Mr. HALL. Right.

Senator MITCHELL. My time is up for this round. In accordance with the committee's practices, we will proceed to questioning in the order in which the senators appeared. Questioning will be limited to 5 minutes for the first round. We will continue as long as questions remain and Mr. Hall can remain.

Senator Baucus.

Senator BAUCUS. Thank you, Mr. Chairman.

Mr. Hall, I also want to commend Ashland for the degree to which the company was very cooperative and very forthright in helping apparently to clean up and to try to find the causes of the problem. In fact, I think it's remarkable.

Mr. HALL. Thank you, sir.

Senator BAUCUS. It's not often, in fact it's rare, that a major company like Ashland would come before this committee with such candor in such an apparent effort to try to find the causes of the problem and try to find the solution. I think all of us commend you very much.

We also know that hindsight is a little better than foresight.

Mr. HALL. Yes.

Senator BAUCUS. I am wondering whether in your view it is necessary for Federal legislation because either the API's self enforcement is inadequate or State law is inadequate. Do you think that as a general rule we do need Federal legislation to set some basic minimum requirements so if a State wants to have more stringent standards it may, or if API wants to have more stringent standards it may? Do you think that probably for the good of the country and to get the ball rolling, to get moving on this, that it makes sense to have legislation somewhat along the lines of the bills that you heard discussed this morning?

Mr. HALL. Well, I can certainly understand that in the aftermath of an incident like this there is an outcry for legislation. I do submit that this has been a very rare occurrence to have a catastrophic failure of this type. Normally when a tank fails you get a leak which is contained by the dikes that are around the tank, and it is generally a very simple matter to get the tank out of service and repair it without any damage.

It's hard for me to evaluate the tradeoff between the extra cost of the regulation and the need for it. As I suggested, one possibility would be that the law require a company to follow the API 650 and require a company to certify, have a professional engineer certify that the API 650 was followed, and that the tank was not put in service until all the proper tests were done. That might be one possible alternate for you.

Senator BAUCUS. Could you describe the provisions of the State plan. They are called, I guess, Preparedness, Prevention, and Contingency Plans, required by State law that would apply and did apply to Ashland? What are the chief provisions of that plan that would bear on prevention of these kinds of catastrophes?

Mr. HALL. I'm sorry, I'm not familiar with the State plan, Senator.

Senator BAUCUS. It is my understanding that under the State Clean Streams law, facilities, like the bulk storage area at least in Jeffersonville, are required to have Preparedness, Prevention, and

Contingency Plans. I am just wondering what those plans are. You are not aware of that?

Mr. HALL. I am not aware of that one, sir. I'm sorry.

Senator BAUCUS. Could you tell me what the State requirements are in this respect; that is, what State standards or regulations are there? What plans do the States require?

Mr. HALL. No, sir. I am familiar that the EPA requires you to have a spill prevention control plan. And we had one. The EPA has since criticized it, and we have submitted the EPA's criticisms to the API to see if they might through the Safe Operating Practices Committee for the industry make some suggestions as to how companies might improve these spill prevention plans.

Senator BAUCUS. But you are unaware of any State requirements?

Mr. HALL. Yes, sir, I am not.

Senator BAUCUS. Thank you very much.

Senator MITCHELL. Thank you, Senator Baucus.

Senator Chafee.

Senator CHAFEE. Thank you, Mr. Chairman.

Mr. Hall, like perhaps so many on this committee, I have a reluctance for the Federal Government to legislate every time there is an accident in the country. Thus, the answer is frequently well, let the States do it, and indeed many of the States do do it.

Furthermore, this committee is opposed to Federal preemption. In other words, if there is a State law that goes beyond the Federal law, that's fine. Thus, again, it would seem to mitigate against having a Federal law if the State law is there.

However, we are in a situation here particularly in this instance where the protection of the downstream States is really dependent upon what takes place upstream in different States. Thus, you could have a situation where Pennsylvania didn't have any law and yet West Virginia would be badly hurt, and indeed they were in this instance, because the Pennsylvania law wasn't enforced or wasn't obeyed or whatever it might be.

Are many of these refineries and the tanks next to rivers? Is that a traditional place to put tanks?

Mr. HALL. Well, sir, petroleum products are historically distributed——

Senator CHAFEE. By tow barge.

Mr. HALL [continuing]. In the largest quantity possible and then broken down into smaller quantities. For example, if we have a customer in Pittsburgh for diesel fuel, it is much more economical for us to barge the diesel fuel to Pittsburgh, put it in a tank and then load it on a truck, deliver it to Pittsburgh, than it is for us to try to truck the diesel fuel all the distance to Pittsburgh.

Senator CHAFEE. So thus my point that this incident of the tank blowing out and getting into the river, and rivers obviously go interstate, is not an unusual situation.

Mr. HALL. Well, it's maybe unusual for a tank to fail in this manner, but it's not unusual for companies to operate river terminals. We have 19 of them ourselves along the Ohio River.

Senator CHAFEE. So it seems to me that would be a force that would be pressing toward a Federal law rather than just saying to the States, well, you fellows get busy out there since, as I men-

tioned before, the downstream States can be affected by failures that take place upstream.

Let me ask you another question. In this particular instance there has been a lot of dealing with 40-year old steel and comments about that. As steel gets older, does it become weaker, it ages and gets stress built into it so it thus is weakened? Is that traditional?

Mr. HALL. Normally not, sir, unless it is in a service where the fluid might corrode it. But in this case the steel was inspected and was found to be in good condition.

Senator CHAFEE. Was the tank that it was used on in Cleveland of the same dimensions as the tank it was used on the Monongahela?

Mr. HALL. Yes, sir.

Senator CHAFEE. Same size tank?

Mr. HALL. Yes, sir.

Senator CHAFEE. I think you indicated that it wasn't the welding that gave, the seam where it broke wasn't a seam that had not been inspected? What did you say on that particular count?

Mr. HALL. You are required by the API Standard 650 to inspect a certain number of the welds in the tank and x ray them. In our internal inspection we found, investigation I should say, we found the x rays of the welds, but none of these welds were in the area of the failure of the tank. So when we gave these weld x rays to Battelle they said it wouldn't help them because just as it happened, none of these were in the area where the crack occurred.

Senator CHAFEE. In other words, where the crack occurred was not one of the ones that had been x rayed?

Mr. HALL. Yes, sir.

Senator CHAFEE. Under the API regulations are you bound to x ray all welds?

Mr. HALL. No, sir. There is a number that varies according to the size of the tank.

Senator CHAFEE. So under the API rules you wouldn't necessarily have inspected this particular weld where it gave?

Mr. HALL. No, sir. It's a random method. In other words, the bigger the tank, the more welds you are supposed to inspect. And the idea is if you do it in a random enough manner, you know, you'll get an indication of whether there are any bad ones there.

Senator CHAFEE. I see my time is up. Thank you, Mr. Hall.

Senator MITCHELL. We are pleased to be joined by Senators Lautenberg and Durenberger. Senator Lautenberg.

Senator LAUTENBERG. Mr. Chairman, first of all, let me commend you for your review of this accident and for the prospect that perhaps we can learn something from this hearing that will help us avoid this kind of situation because you can never recover enough to ever make up, I think it's fair to say, for the loss, particularly some of the environmental conditions.

I too would like to commend Mr. Hall for the forthrightness with which he discussed the subject, admitting some of the shortcomings in the process as well as some of the problems that he now knows existed that unfortunately couldn't be learned in enough time or didn't have the opportunity to learn about in enough time to prevent it. So we commend you for coming here. This isn't an easy place to come and make this statement. Obviously it's not a private

statement. This is not executive session. So it's tough to kind of 'fess up as you did. I take it in the spirit of cooperation, wanting to help, wanting to commit Ashland to help and perhaps get other companies to be alert to the situation before we have another catastrophe on our hands.

I would just ask one question. I'm sorry, Mr. Chairman, that I wasn't here from, the start. I would ask that if there are some questions that we would like to ask, that the record will remain open to give us a chance to do that.

Senator MITCHELL. Yes, that will be done. Any Senator who wishes to do so may submit questions for any witness in writing, and we will ask all of the witnesses to respond to them as promptly as possible.

Senator LAUTENBERG. Mr. Hall, it is my understanding, and if you know differently I would appreciate your response, there is no permitting process per se that is specific about the quality of material, the precise construction. There are a lot of recommendations and guidelines, the Clean Water Act and so forth.

Are you aware of any specific requirements in any of the States around the country on tank construction or what kind of precautions need to be taken?

Mr. HALL. I'm not an expert in the area, sir. I am aware of the API Standard 650, and I think in some States the local fire codes refer to it. But I just have a general knowledge of these regulations.

Senator LAUTENBERG. One of the things that strikes me, and that is we have so many pooled risk funds because we have become aware of the fact that accidents can happen, that the cost when they do happen are enormous. We have it in the nuclear industry, we have it in other places.

I wonder how the thought strikes you that there might be some kind of a permitting fee, an insurance premium pooled for such kinds of accidents that perhaps graduates with the age of the facility. I mean, we do know there is stress on these things as they get older. Does that kind of a notion strike you as being something that ought to be considered?

Mr. HALL. I really hadn't given any thought to that, sir. There are certain municipalities where you are required to pay a fee for a building permit, but I hadn't really given any thought to an escalated fee based on——

Senator LAUTENBERG. I am talking about perhaps a national thing. And I recognize that it covers a fairly complex area and we can't answer it in a few minutes, although the temptation here is to do so.

I thank you very much.

Thanks, Mr. Chairman.

Senator MITCHELL. Thank you, Senator Lautenberg.

We are pleased to have Senator Durenberger here. He is the author of legislation covering underground storage tanks which was included in the Superfund bill. He has also introduced legislation involving pipelines and so has a longstanding interest and knowledge in this area. We are pleased he is here today and will participate on the legislation in this area.

Senator Durenberger.

OPENING STATEMENT OF HON. DAVE DURENBERGER, U.S. SENATOR FROM THE STATE OF MINNESOTA

Senator DURENBERGER. Mr. Chairman, thank you for that statement and that introduction.

Over the past few weeks, Mr. Chairman, Mr. Hall, many people have said that the spill of diesel fuel into the Monongahela which occurred on January 2 revealed a gap in the Nation's environmental law and that Congress hasn't adopted measures to prevent this kind of event. That's not true.

The Ashland terminal and the tank farm in Pennsylvania was subject to Federal environmental regulation, and we all know it as the Spill Prevention, Control, and Countermeasure Program, or SPCC, or section 311.

The catastrophic failure of an above ground tank containing four million gallons of petroleum product certainly has demonstrated there are weaknesses in the SPCC program. Hydrostatic testing is not an absolute must, secondary containment is only effective for slow releases, contingency planning wasn't in place. EPA doesn't have sufficient resources to review plans and inspect facilities. So SPCC has problems.

But there was a Federal regulatory regime already in place which contemplates events of this kind and which was intended to prevent damage to surface water resources from tank spills and which provided the organizational structure for response.

Mr. Chairman, it seems to me that if the subcommittee and the committee conclude that SPCC is in some respects deficient as a result of this hearing and other investigations, we ought to report legislation that amends the Clean Water Act.

Having said that, however, I would like the committee to consider, and perhaps Mr. Hall to comment as he has in response to other questions, whether or not there might not be good reason to consider other kinds of legislation. I understand the Senator from South Dakota was good enough to mention the fact that in our pipeline safety bill we have taken the LUST legislation, the Leaking Underground Storage Tank legislation, and also amended it so that it would apply to LAST, which isn't as sexy as LUST, but it is just another acronym for Leaking Above Ground Storage Tanks. That's the approach. The approach of Senators Heinz, Specter, Daschle, and others, that's an approach. There may be some other thoughts in this regard.

I would just share with you three reasons, and maybe Mr. Hall can comment on them, that you might consider additional legislation.

First, in addition to the spill to the river there is apparently substantial contamination of soil and some possible threat to ground water associated with the Ashland spill. The one in South Dakota was all ground water. It created a substantial ground water problem. I'm not sure what the ground water problem might be here.

RCRA, as we know, and we did this in Superfund as you pointed out, is the home of the current underground tank program, and it is a ground water protection law.

Second, we already have a Tank Release Trust Fund. It has in it about $100 million I think, or the balance of about $100 million in

that trust fund which will help a Federal response. In this case Ashland came forward to pay the cost, but in the South Dakota case, the responsible party did not.

By comparison with that trust fund, the SPCC fund has only about $10 million on hand which I guess would mean that the Federal agency is going to be a little tight-fisted even if you said, we can't afford the responsibility. They are going to be a little tight fisted with how they spend that $10 million. So it may be appropriate that we look at that relatively small size of the 311 fund.

Third, legislation establishing new technical standards for the construction and operation of above ground tanks to prevent releases might be integrated with the existing underground tank program that is already in RCRA so that we don't have to have a new act.

It seems to me the proper structure for a mandatory release prevention program is there, is already in place, and could be adopted to above ground tanks. And that is what I incorporated into my program.

So, Mr. Chairman, I thank you for calling us together. I wanted to make that observation since I've sort of been in the tank and pipeline business for a while, as Mr. Hall knows well, and perhaps conclude and see if he has a reaction to those suggestions that I've made.

Mr. HALL. I'm not really an expert in the field of regulation, sir. I do caution that Ashland Oil has probably two percent of the petroleum sales of the United States, and I think we have approaching 2,000 tanks of more than 5 or 10,000 barrel capacity. So it is not an easy task. There are a lot of tanks in the United States.

I would hope that if you find that regulation is necessary that to the extent you could make it self policing it might be productive for the Nation. But I can certainly understand that with an incident of this type there may be need for new laws and regulations.

Senator LAUTENBERG. Mr. Chairman, Senator Pressler had to leave to go to a Foreign Relations Committee meeting; he has a series of questions he would like to submit to Mr. Hall, and perhaps to others.

Thank you very much for your being so forthcoming, Mr. Hall.

Mr. HALL. Thank you, sir.

Senator MITCHELL. Thank you.

Mr. Hall, in your testimony you state that you quickly contacted your insurance carrier to establish a claim center. How much insurance does Ashland carry for an incident of this type and what company issued the policy?

Mr. HALL. Our insurance, sir, is with a group called OIL. It is an oil industry group of 29 companies primarily directed toward pollution and spills. OIL has about $1 billion in assets. The limit of our coverage is $400 million, and it is subject to a $2.5 million deductible.

Senator MITCHELL. Do you now anticipate that claims will exceed the amount of insurance coverage you have? Are you able at all to estimate that?

Mr. HALL. We do not think it will exceed the coverage, sir.

Senator MITCHELL. You do not think so.

Mr. HALL. No, sir.

Senator MITCHELL. So at least your present expectation is that your existing coverage through this industry associated insurance entity will be sufficient to cover the claims from this incident?

Mr. HALL. We believe so, yes, sir.

Senator MITCHELL. One final question from me, Mr. Hall. As I said earlier, you candidly described actions by the company which have been criticized. You are self critical; others have criticized you. What are you doing about it? What is happening in your company to hold those who were involved accountable, and also more importantly from the public's standpoint, to reduce the likelihood that such an incident would occur in the future? You, yourself, have just indicated the very large number of tanks that you have. Tell us what you have done to reduce that likelihood.

Mr. HALL. We have put four of our employees on reassignment until we complete our investigation. We are in the process of a review of all of our terminals. We want to review the size of the dikes, the condition of the tanks, and also all of our engineering procedures so that we can make certain that an incident of this type does not happen again.

Senator MITCHELL. Would you provide the committee with periodic reports as you deem appropriate in time on what you are doing and what the results are? That is, it would be, I think, important for us to know whether this was truly an isolated instance which is of extremely unlikelihood to occur again or whether you discover in the course of your review that in some number of other cases there was a possibility of action and damage occurring. In other words, give us some feeling for what your review provides. Would you do that, Mr. Hall?

Mr. HALL. Certainly we will want to cooperate with the committee in every way we can, sir. The only reservation I would have is if there are any criminal charges brought against any individuals or the company, I would certainly have to speak with counsel. But with that one reservation, I would be delighted to cooperate and give you any information that we have.

Senator MITCHELL. Thank you, Mr. Hall. Your counsel is going to talk with you in any event before you give us anything. I assure you of that, having spent a lifetime practicing law. We hope you can get past your counsel to give us as much information as you appropriately can without, of course, compromising your own company's interest.

Senator Chafee, do you have any further questions?

Senator CHAFEE. First, Mr. Chairman, I want to join your comments about Mr. Hall's appearance here today and his statement about being candid. You have given us a candid statement in which you pointed out some of the failings that you folks made. And that's rather unusual for that kind of testimony to come before here.

The chairman asked you some questions about insurance. Is it possible, and the reason I'm asking you this question is because the thrust is always, in Congress, to have separate funds set up with everybody paying into them in order to cover the cost that might occur to those injured by a spill such as this. Is it possible to obtain insurance that would cover gross negligence or even willful miscon-

duct by an oil company such as yours? Do you know the answer to that?

Mr. HALL. My impression, sir, is that negligence is not a factor in the coverage that we have with the OIL.

Senator CHAFEE. In other words, it just covers the damages occurred; regardless of what caused it, the insurance company will pay?

Mr. HALL. Unfortunately, normally when there is a spill or pollution problem there is a good chance that there is human failure. There's always a possibility of human failure in a problem of this sort.

Senator CHAFEE. Well, I did take it a step beyond just negligence. I was dealing with willful misconduct or gross negligence. But you think it is possible and currently available in the insurance market that just covers accidents regardless of how they occurred?

Mr. HALL. One of the reasons the 29 oil companies went together on OIL was to make sure this type of coverage was available. I'm not certain it is generally available.

Of course, on the subject of willful misconduct, we have no evidence at all that anybody in our company——

Senator CHAFEE. No, I wasn't suggesting that at all, Mr. Hall. I want to make that clear. I wasn't suggesting that. I was asking about the type of coverage that is available out there.

One final question. The dikes that are erected around the tanks, those dikes I presume will contain the total amount of oil that is in the tank if there is a normal type of leak, is that right?

Mr. HALL. The rules, sir, say that you must have a dike or a system of dikes around the tank farm that will contain all the oil in the largest tank, not all the tanks but the largest tank.

Senator CHAFEE. I see.

Mr. HALL. By certain OSHA standards the dike height can be limited to six feet because people have to go over those dikes to go in and gauge the tanks or turn valves or do other things. So the dike normally is not higher than six feet, and the dike is supposed to contain all the oil in the largest tank.

Senator CHAFEE. I see. Fine.

Thank you very much, Mr. Chairman.

Senator MITCHELL. Mr. Hall, we thank you for your appearance. We look forward to hearing from you in response to the written questions that will be submitted to.

Mr. HALL. Thank you, sir.

Senator MITCHELL. Thank you very much.

Our next panel will include Dr. J. Winston Porter, the Assistant Administrator for Solid Waste and Emergency Response at the EPA; and Mr. James Seif, Regional Administrator of Region III of the EPA, accompanied by Timothy Fields, Jr., Director of the Emergency Response Division; Mr. Mark McClellan, Deputy Secretary, Pennsylvania Department of Environmental Resources; and Rear Admiral J.W. Kime, Chief of the Office of Marine Safety, Security and Environmental Protection of the U.S. Coast Guard.

Dr. Porter.

STATEMENT OF DR. J. WINSTON PORTER, ASSISTANT ADMINISTRATOR FOR SOLID WASTE AND EMERGENCY RESPONSE, ENVIRONMENTAL PROTECTION AGENCY, ACCOMPANIED BY TIMOTHY FIELDS, JR., DIRECTOR, EMERGENCY RESPONSE DIVISION

Dr. PORTER. Thank you, Mr. Chairman.

I have with me, as you indicated, Jim Seif, who is Regional Administrator from our office of Region III in Philadelphia, and Tim Fields, to my far left, who is Director of our Emergency Response Division. I will briefly summarize my testimony, and then I think Mr. Seif will do the same with his.

Senator MITCHELL. Thank you. We will include in the record your written statements in full. We ask that you limit your oral remarks to five minutes.

Dr. PORTER. Yes. I will.

Senator MITCHELL. This light will help you tell when five minutes is up.

Dr. PORTER. Mr. Chairman, I am going to talk more generally about the regulations and where I think the Agency may be heading. Mr. Seif will talk about the specifics of this incident.

The Spill Prevention, Control and Countermeasure [SPCC] regulations which were enacted pursuant to Section 311(j) of the Clean Water Act are designed to prevent discharges of oil from certain onshore and offshore facilities and to contain such discharges when they occur.

This requires that facilities which are non-transportation related facilities with buried storage capacity in excess of 42,000 gallons or above-ground storage in excess of 660 gallons in a single tank or 1,320 gallons in aggregate, are regulated by the SPCC program if the facilities could be reasonably expected to discharge their contents into navigable waters.

As indicated earlier, we think there may be as many as 600,000 facilities, 10 percent of which have major tanks.

These regulations indicate that SPCC plans should be tailored to site-specific conditions. The plans should address potential equipment failures at the site, and identify appropriate containment or diversionary structures to prevent spilled oil from reaching navigable waters. They are also intended to identify the potential direction and flow of oil spilled into diversionary structures and some of the other site-specific natures of a potential spill, to prevent the spilled oil from reaching navigable waters.

Further, for oil tanks the regulations contain certain specific guidelines and requirements. For example, a secondary containment structure should be constructed as capable of containing the entire contents, as Mr. Hall indicated, of the largest single tank plus precipitation, and dike areas should be impervious to contain the spill.

In addition, integrity testing is required on a periodic basis to see if in fact the tanks have engineering integrity.

Finally, the requirements of the SPCC regulations are that a contingency plan be developed, describing of the steps to be taken in the event a spill reaches navigable waters.

Second, let me turn quickly to the National Contingency Plan which requires that the Federal government provide an on-scene coordinator to undertake response actions if no willing or capable

responsible party can be found and the State and local governments have not been able to respond.

When another party initiates such a response, the Federal onscene coordinator may oversee the work and provide technical support to insure a prompt and complete cleanup, as was the case with this particular spill.

Finally, Mr. Chairman, a few days ago I set up a task force involving EPA, the National Bureau of Standards, OSHA, the U.S. Coast Guard the Department of Transportation, and others to take a quick and fresh look at the SPCC regulations. Certainly this incident brought to our attention certain portions of the regulations which we need to review.

So this task force will meet shortly, and I've asked them to report back to me quickly on some of the issues we need to look at.

The specific things I've asked them to review pursuant to this particular incident were the requirements for the prevention of tank rupture, to have better requirements in that area; the wave effect that apparently contributed to the oil washing over the dikes; and also the high risk potential in sensitive ecological or limited drinking water supply areas.

Finally, I want to stress that probably the main thing we are going to do with respect to these regulations is see if we should change some "shoulds" to "shalls". In other words, this program may be entirely too voluntary. We may need to tighten up these requirements and make it clear that integrity testing, contingency planning and other components of SPCC plans are requirements and not simply guidelines.

We will also be looking closely at other Federal and State regulations. As you know, I am involved with both RCRA and Superfund, and I want to look at some analogies. As Senator Durenberger indicated, the underground storage tank program may provide some useful analogies, and we want to look at those kind of programs to see if they have any relevance here.

In summary, Mr. Chairman, I'm very concerned about this situation. We certainly had a very, very bad incident here. On the one hand one can say that an accident like this has not happened in the last 12 or 15 years; on the other hand, once or twice is probably too much, in fact it is too much. We plan to revisit the regulations.

Philosophically I think we probably need to require that SPCC plans be more site specific recognizing that this particular incident was about the worst possible situation that probably could have happened. But there are other bad situations around the country we need to look at.

We will revisit the requirements, as I said, and we will be happy to work with you on legislation if it seems to be needed.

The last philosophical point I will make, and I think it is borne out very clearly here, are more prescriptive, site-specific SPCC plans that will prevent spills from getting into a river rather than trying to clean them up. We have found, and Mr. Seif I am sure will touch on this, that it is a very, very tough technical job to contain spills once these oils get into a free-flowing river, particularly in the dead of winter compounded by a few other factors.

In this case and perhaps others we could have—we meaning all of us collectively—including the company, could have done a much

better job in not having the material get in the river in the first instance with more attention to better planning upstream.

So with those comments, Mr. Chairman, I am going to turn it over to Mr. Seif.

Senator MITCHELL. Thank you, Dr. Porter.

Mr. Seif.

STATEMENT OF JAMES M. SEIF, REGIONAL ADMINISTRATOR, REGION III, U.S. ENVIRONMENTAL PROTECTION AGENCY

Mr. SEIF. Thank you, Mr. Chairman.

I would like to, given that the testimony is in the record and does cover some of the chronology and so on, touch upon a point raised by Senator Durenberger concerning section 311.

There were in the wake of the release of this oil, a number of respected public officials who urged EPA and me personally when I arrived shortly afterwards, to declare this a "Federal spill", to take it over in some way. That gives a dilemma—a technical, legal, financial and public relations dilemma—to the Federal official, one which is a part of the regulatory scheme. You may wish to take a look at that.

The fact is that it is not a Federal spill except that they all are in terms of the regulatory jurisdiction; it's Ashland's spill. The spiller must clean it up. Appropriately enough, when the spiller doesn't, or can't, or won't, then a Federal fund should be activated. It has been mentioned, however, that that Federal fund is rather low. It's about $10 million, not even close to what we think this may require in the long run, and not necessarily applicable to some of the big ticket items like water supply restoration.

In fact, I was confronted with a willing and apparently able responsible party who was working very hard, and I think in retrospect, effectively to do the job. And yet, it was unsatisfying from a public relations point of view, using that term I hope in its clinical sense, that the Federal officials were standing around watching Ashland do the work.

I was asked by Congressman Mazzoli at a previous hearing what would I have done differently. Well, it would have been very tempting to jump on a helicopter, and be on my home town television, and issue press releases, but the fact is the substantive job was getting done and done right. People were being protected as best as possible under the circumstances of the original accident. I guess what I would have done differently is issue a press release like Al Haig, and say, "I'm in charge here," and then let everything work the way it worked anyway to address that problem.

Senator MITCHELL. Well, you did maintain some supervision or monitoring.

Mr. SEIF. Absolutely. And substantively, Ashland was doing each and everything they were asked to do. They were asking for more things to do. In my presence Mr. Luellen, the chief executive officer of the company, took some steps by way of writing checks, almost literally, to address the water supply problem, to hire barges even though they might not be necessary to get them loaded

with fresh water, and so on. It was an impressive display by a company that had the wherewithal, and we knew that.

The problem was that people like Congressman Walgren and others were unsatisfied that the Federal government was asserting its proper role in a governmental sense under the Clean Water Act.

However, when you have a responsible party from whom you take over the action who insists later that it was still willing, then you have a tough time serving the bill on them. I'm sure Admiral Kime can help us with this, and we are going to supply some more information to the congressional committees. You can get into a perpetual contest over who should have spent what and how fast and all of that.

I would like to get off of that dilemma by either the regulatory change that Dr. Porter is talking about, or possibly by looking at section 311.

Also, there has been some contest, certainly in the local newspapers, about who got there first and who should have done what. I happen to be proud of the work done by EPA people and our colleagues at the Coast Guard. We have no EPA office in Pittsburgh but only in Wheeling, West Virginia, some 50 miles away. People tend to equate your physical presence there with whether you were doing something. In fact, a considerable amount was done by the Coast Guard in the immediate minutes after the report. And while you can say who struck John over where the booms should have been, you will find that the response to this spill, and it is a very rare spill of this size on an inland waterway, was very good. As Dr. Porter has pointed out, we faced high water, fast water, cold water, and ice on the Saturday night after New Year's Eve. I think it was a heck of a job.

I might also point out that this oil is not like the crude that we know floats. It sinks pretty quickly. And when it went over the dam which was a few hundred yards away, just a few hundred yards away, the mixing was immediate and complete and recovery chances became pretty slim.

There is a lot of followup being done from a regulatory point of view and by the Department of Justice, and I will be happy to report what is appropriate to report if there is any interest in that regard.

A final point that Dr. Porter made, that it is clear from our review that the SPCC should be a customized effort, given the drainpipe close to the river and a whole lot of circumstances quite unique here, such as the presence of a dam, for example. Just going by the book, even if we rewrite the book and put all the "shoulds" in, may not do it. Responsible company officials are going to have to look in detail at their specific facilities and do specific things, some of them perhaps beyond what the regulation requires to handle the job.

Senator MITCHELL. Thank you very much, Mr. Seif.

Admiral Kime, welcome again. We look forward to hearing from you.

STATEMENT OF REAR ADM. J. WILLIAM KIME, CHIEF, OFFICE OF MARINE SAFETY, SECURITY AND ENVIRONMENTAL PROTECTION, U.S. COAST GUARD

Admiral KIME. Thank you, Mr. Chairman. It is always a pleasure to appear before you and the members of this committee. I too will summarize my comments.

The Coast Guard responded to this case consistent with the various provisions of the Clean Water Act, the National Contingency Plan and a memorandum of understanding between the Coast Guard and the Environmental Protection Agency.

Mr. Chairman, since there seems to be some question about the chain of command and authority here, I would request your permission to submit a copy of that memorandum of understanding. I think this may be clarifying.

Senator MITCHELL. Thank you, Admiral.

Admiral KIME. Thank you, sir.

According to the National Contingency Plan, a Federal predesignated on-scene coordinator is assigned to insure that appropriate action is taken whenever there is a discharge of oil into the navigable waters of the United States. The local Coast Guard captain of the port serves as the predesignated on-scene coordinator for pollution incidents occurring in coastal areas. The EPA provides predesignated on-scene coordinators for inland areas.

The Coast Guard did not normally serve as the predesignated on-scene coordinator for discharges which occur at industrial facilities, bulk storage facilities, hazardous waste sites, or non-marine transportation casualties in the inland areas. However, operations and resources permitting, the Coast Guard will, at the request of EPA, provide assistance and act as the first Federal official on-scene for those major incidents which occur in inland areas that require immediate Federal presence.

The Coast Guard Marine Safety Office, or MSO, in Pittsburgh received a report of an oil spill at Ashland Oil Company, mile 21 on the Monongahela River, at 5:30 p.m. on the 2d of January 1988. Further telephone investigation revealed that an Ashland Oil Company oil storage tank collapsed and released approximately four million gallons of diesel oil. The instantaneous release caused approximately one million gallons of the diesel oil to flow over the containment dike, spilling into drainage ditches from which the diesel oil continued into the Monongahela River.

Coast Guard Marine Safety Office Pittsburgh immediately notified all appropriate Federal, State and local interests. The EPA regional office in Philadelphia was informed that the source of the spill was an oil storage tank. EPA Region 3 requested that the Coast Guard respond as first Federal official on-scene and indicated that EPA would assume the duties of on-scene coordinator upon arrival.

MSO Pittsburgh requested assistance from the Coast Guard's National Strike Force and closed the Monongahela River between miles zero and 24 to marine traffic.

Ashland Oil Company assumed financial responsibility for the cleanup and promptly contracted two cleanup companies. An initial plan for oil recovery from the river was completed during a

meeting of representatives from the Coast Guard, Ashland, and the two cleanup companies. The plan included the deployment of 10,000 feet of containment boom at two primary locations on the Monongahela.

EPA Region 3 assumed on-scene coordinator at 11:00 a.m. on January 3rd upon arrival and requested Coast Guard assistance in monitoring oil recovery in the river. Coast Guard National Strike Force personnel arrived at 1:15 p.m., on the 3rd of January and immediately conducted an overflight of the spill area.

National Strike Force personnel discovered that the speed of the current in the river had reduced the effectiveness of the containment boom. They recommended that the boom be deployed such that oil in the river would be deflected toward natural containment areas in the river to facilitate removal. This proved more effective.

The deflection booms were unable to reach the oil that floated down the middle of the Monongahela and Ohio Rivers, and the deflection booms were ineffective in containing the oil that flowed downriver below the water's surface. Thus, a large portion of the oil proceeded downriver making the primary concern the protection of public water supplies.

Coast Guard National Strike Force personnel assisted the city of Wheeling, West Virginia by pumping fresh water into the Wheeling water treatment plants. Water was pumped from an unaffected fresh water creek into tank barges and then the barges were offloaded into the water treatment plants. Air deployable anti-pollution transfer system pumps provided by the National Strike Force were used for this operation and were funded by Ashland Oil.

As the diesel oil moved downriver, much of the oil became mixed in the water column after going over the dams in the river and remained mixed vertically in the water column. Also, as the diesel oil neared its freezing point, it became waxy and lost its buoyancy. Thus, the oil flowed with the current at the depth at which it mixed. Additionally, ice formed on the river and trapped diesel oil in and below the ice.

The Coast Guard assisted the EPA in another important area, public relations. A member of the Coast Guard's Public Information Assist Team, who is trained in both media relations and pollution response, arrived in Pittsburgh on 3 January and responded to a flood of media and public requests for information specific to the incident.

Most of the Coast Guard forces were demobilized between 12 and 14 January. Marine Safety Office Pittsburgh continued to provide assistance as requested by EPA and four National Strike Force members remained on-scene to supervise oil recovery operations in the Monongahela and Ohio Rivers. All Coast Guard personnel were demobilized on the 22nd of January.

As of 23 January approximately three million gallons of diesel oil were recovered from the land and 150,000 gallons of diesel oil from the water. During the incident the on-scene coordinator had access to the Coast Guard Administered Pollution Fund, established in Section 311(k) of the Clean Water Act for removal of spilled oil, in case the responsible party failed to take appropriate cleanup actions. Since the on-scene coordinator determined that

Ashland Oil Company has acted responsibly during this incident, there has been no need to access the fund.

Mr. Chairman, that completes my statement. I would be prepared to answer any questions you or the members would have. Thank you, sir.

Senator MITCHELL. Thank you, Admiral.

Mr. McClellan?

STATEMENT OF MARK McCLELLAN, DEPUTY SECRETARY, PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES

Mr. MCCLELLAN. Thank you, Mr. Chairman.

I appreciate on behalf of Pennsylvania the opportunity to testify before you today. I can say we welcome your prompt attention to this problem.

As I understand, my text will be placed in the record, so I would like to concentrate on two key issues today.

The first is our concern and our views on the adequacy of the immediate Federal response to this bill, and I would like to distinguish between the immediate and that which followed 48 hours later, and specifically our recommendations for the changes in Federal statute, regulations and policies relative to preventing this from happening next time, and two, to insure a quick Federal response in these kinds of major spills.

Just a brief background. It has been a month since the accident when almost a million gallons spilled into those rivers and threatened the water supply of almost 800,000 people in Western Pennsylvania. We don't know the full scope of the environmental damage to date, but it's significant. We estimate already, and we know that there has been ground water and soil contamination on site, 11,000 fish killed, 2,000 waterfowl. Cleanup of tons of soil will be required clear down to the Ohio line in Pennsylvania, all of which means the magnitude and scope of the problem for Pennsylvania and my employees will be significant.

A little background on our response, and let me mention that Governor Casey has created a task force which is reviewing this to identify the cause, the responsibility of Ashland, as well as recommendations for changes in State law on this problem.

In addition, you should be aware that the lieutenant governor announced yesterday that as a result of our commission's structural study we have found one additional tank on the site which has structural flaws, and Ashland has agreed to begin pumping that down immediately. There are still additional tanks on the site which our consultant has not yet reviewed. So there may be others on the site.

In the terms of the background of our response, within 25 minutes of notification my department was on site. We were precluded from 10:30 that night until six the next morning to get directly to the site because of the concerns over a fire hazard and the ignitability of the gasoline leak which was expected. In fact, the first people on site then after that was the lieutenant government and myself when we flew in before dawn from Harrisburg to direct the involvement.

We worked through the night with the Coast Guard and the local emergency response people to contain it and work on setting up the booms with the Coast Guard and the city down near the point in Pittsburgh.

Ashland Oil, however, did not ever formally notify our agency, although they did notify others, although their local spill prevention plan required them to do so.

It's critical that you know as well that from 8:00 that morning on the river both the lieutenant governor and I directly requested that this be declared a Federal spill. Because they lacked a helicopter, we took the Coast Guard immediately up in the air. They saw the spill. The commander indicated it was the worst spill he had ever seen and it deserved Federal attention, but he had to have "a meet and discuss" with the EPA on-site coordinator before any decision could be made.

We wanted to hurry that up. We flew him to the site and met the on-site coordinator about 8:30 in the morning. He immediately informed me that he would have to have further "meet and discusses" with the Coast Guard and with Ashland Oil, and in four or five hours he would be prepared to give me an answer. We were maybe two hours away from the oil reaching the river. We had six inch booms in the river because that was all the control equipment that the Coast Guard had.

The Coast Guard indicated to me at 8:00 in the morning that the Gulf strike force could be in the town immediately, in a few hours, as well as larger booms from Toledo, but they could only do it if it was authorized by the on-site coordinator. He refused to do so unless I was willing and I committed, and I did, that we would pay the full cost of bringing the strike force in and the booms.

We are concerned about this delay. At this time in this kind of emergency, we don't think those kinds of things should happen and an immediate response is essential. We do not believe the public in these cases should depend on the good faith of the responsible party to do the work. That's not the issue here. They may have the money and the good will to do it, but we think when it is something of this magnitude, the Federal government has an obligation to step in.

If in fact it is a concern about less dollars in the 311(k) fund or limits on the protocols that require these discussions, we recommend strongly, as Jim Seif may have mentioned, that these things be looked at and changed because we need quick response, not four and five hours of "meets and discuss" before we move in the troops and the equipment.

Specifically to our recommendations. At this point it is difficult to give very comprehensive recommendations until our task force is done, but we have five.

In terms of regulating storage tanks, we recommend, although we are having State legislation prepared, that Congress through legislation urge and direct EPA to develop national minimum requirements to ensure that new and relocated above ground storage tanks for petroleum and other hazardous substances are designed and installed so as not to endanger public health.

In terms of emergency response, time is of the essence. In many circumstances actions taken immediately can change the character

of the incident from disaster to a contained cleanup. In this case the initial response of Federal agencies to this incident was slow and hampered by the fact that EPA and Coast Guard had to talk and discuss before they could take actions. We think this needs to be changed.

We ask that the Congress direct that the National Contingency Plan be revised so as to make Federal funds automatically available whenever there is, one, a major discharge, whether or not the responsible party is willing to clean it up; a spill of any lesser magnitude which presents an immediate threat which would affect two or more States at the request of the governors; a spill of lesser magnitude that affects one State upon the agreement of the on-site coordinator and the governor.

We should also point out that the Coast Guard equipment assigned to the Port of Pittsburgh, one of the largest in the country, was inadequate with only six inch booms. In fact, we believe the total number of personnel in the Coast Guard in the Pittsburgh inland waterway has been reduced over the last several years and very recently as well.

We also urge Congress to enact legislation with minimum standards for cleanup of spills which also provides that the cleanup meet any more stringent standards set by Federal government. We believe this program should be provided to the States under a primacy process if their regulations are more stringent, and we ask if this is done that States not be preempted from having more stringent standards.

Again, we urge quick action by the Federal Government on this. We are proceeding with our own legislation, but we think this needs a national solution rather than simply a State.

Thank you very much.

Senator MITCHELL. Thank you, Mr. McClellan.

Dr. Porter, I want to ask you about your current regulations, and there is a copy of them here, regarding containment and permitting a waiver of the requirement of containment structures. What it says is that if the owner of the facility demonstrates that containment structures are not practicable they don't have to complete them.

My question is, is that a physical or an economic issue? Does not "practicable" mean that you can't physically build a containment structure, or does it mean that it is too expensive to do so?

Dr. PORTER. I'll have Mr. Fields check me on this, but my understanding is that if it is a physical impracticability.

That's right, I hope?

Mr. FIELDS. That's correct. Just to add to what Dr. Porter said, if you look at the 1973 preamble to these regulations, both the proposed and the final regulation, it was indicated that we wanted to make a distinction between older facilities where it may not be practicable for them to install sophisticated containment and innovative prevention techniques as opposed to new facilities where you could design the facility to begin with to have that containment in place. So we made that distinction, and that language was put in the regulations because of that distinction between old and new facilities and what they could do in terms of putting in prevention techniques.

Senator MITCHELL. Could you, Dr. Porter, provide us with some information on the extent to which that requirement has been waived and the circumstances under which it occurs?

Dr. PORTER. Certainly.

[The information requested follows:]

Senator George T. Mitchell requested that Dr. J. Winston Porter provide him with information regarding the extent to which companies had invokes the impracticability clause of the Spill Prevention, Control, and Countermeasure (SPCC) regulation (40 CFR 112.7(d)), and choose the contingency plan option rather than the specific equipment and controls option set forth in paragraph 112.7(c) of the regulation.

As you know, the regulation does not require companies to notify the Environmental Protection Agency (EPA) when they choose to use the contingency plan option rather than the equipment and controls option. An informal survey was conducted by EPA headquarters staff of practices in five Regions. The results of this survey indicated that the contingency plan option is not widely used by industries that store oil in above ground tanks. For instance, in one Region it was noted by a senior On-Scene Coordinator (OSC) that of 2,000 SPCC plans personally reviewed by that OSC, only one had invoked the 40 CFR 112.7(d) contingency plan provision, because the oil tank was located on the second floor of a building. The location of the tank precluded the use of dikes and other containment measures required in 40 CFR 112.7(c).

Based on the current information available, we estimate that about 0.05 percent, or 350 of the approximately 675,000 existing facilities subject to the SPCC regulations, may have to invoke the impracticability clause and prepare contingency plans instead of meeting the requirements of 40 CFR 112.7(c).

Senator MITCHELL. Admiral Kime, I want to get into this question of the Coast Guard's interpretation of the section 311 fund and its availability to pay for drinking water supplies. I want to state at the outset that I don't agree with the Coast Guard's position, and I would like to explore that a little bit with you. I think it is inconsistent with the intent of Congress and with what I believe to be the clear meaning of the law.

First, let me ask you, am I correct that the Coast Guard has interpreted this to mean that this fund is not available to provide drinking water supplies to persons in an area such as this?

Admiral KIME. Mr. Chairman, let me clarify that just a little bit. This question has never been put before our chief counsel. It is my opinion as a nonlawyer administering the program that a broad interpretation of the word "removal" in 311(k) definition would permit the utilization of the 311(k) fund for drinking water.

Now having said that, this issue has only come up two times to my recollection. I can't go back and examine all our records, but two cases, one in St. Thomas in the Virgin Islands, and the other time was here.

In both cases since there are other funds established, remedies available and since the 311(k) fund is from general appropriations, is very small, and in the absence of the comprehensive oil spill legislation that you are working in this committee so hard to get, we have a very limited amount of money. So we have indicated that we would like to see these sources of funding utilized first.

The basic provision is contained in Public Law 84-99, as amended by Public Law 93-325, this is the Water Resources Development Act of 1986. This authorizes the Corps of Army Engineers if there is a case of public health and welfare being jeopardized to authorize use of money that is funded in the flood control and coastal emergencies appropriation to provide clean drinking water. All this requires in fact is declaration by the governor that this is desired.

In the case in St. Thomas the governor of the Virgin Islands did submit such a request to the Army. It turned out it was not necessary. In the case we are talking about here, the State officials were made aware by the Army Corps of Engineers that this money was available.

I would defer to the EPA people concerning the provisions of paragraph 3001 of the Safe Drinking Water Act that does authorize certain orders by the EPA.

Mr. Chairman, I think we would like to continue our interpretation of this. We think that the solution to this is in the effort that we are pursuing right now for more comprehensive legislation.

We were faced with this very same problem back before we had CERCLA or the Chemical Superfund of the use of 311(k) by a very liberal interpretation. If we did that, it would decimate the fund.

Senator MITCHELL. Let me say that no one disagrees that if alternative sources are available, they are in this case, they should be utilized. No one disagrees with a desire to husband the resources in the fund.

I do disagree with the interpretation that those funds are available for drinking water if other sources are not available. I would ask you if you would put the question to your general counsel, provide that response to this subcommittee. Because if in fact it is your interpretation that those funds are not available for drinking water, then we will consider changing the law to make clear what I believe already to be the congressional intent that it should be so available. It is not a question of the amount of the funds.

Can you tell me please what the current balance of the fund is?

Admiral KIME. Yes, I can, Mr. Chairman. It is approximately $10 million. In fact, the latest figure I have is $10,400,000.

Senator MITCHELL. Section 311(k)(2) of the act states, and I quote:

> The Secretary of Transportation shall notify the Congress whenever the unobligated balance of the fund is less than $12 million and shall include in such notification a recommendation for a supplemental appropriation relating to the sums that are needed to maintain the fund at the level provided in paragraph (1), which is $35 million.

Has the secretary provided such notification to Congress as required by this law?

Admiral KIME. Mr. Chairman, at the time the fund dipped down below, Mrs. Dole was the Secretary of Transportation. She did so notify the Congress on 30 September of last year. There was no request for a supplemental put forward in the President's budget based on the fact expecting imminent approval of the comprehensive oil spill legislation which subsequently passed both houses but did not find its way into law.

Senator MITCHELL. Well, admiral, I am all for the comprehensive bill. You know, you and I have worked on that for a long time. But I don't think that any administration can legally ignore the requirements of the law in the expectation that the law will be superseded by another.

Admiral KIME. Mr. Chairman, I believe the Secretary did announce to the Congress and did put forward the recommendation to the President for such a supplemental. This in the budget process was not included.

Senator MITCHELL. The President has no more authority to ignore the law than does the Secretary, admiral. There is no person in our society who has the legal authority to ignore the plain requirements of the law. I appreciate your position. Obviously you did your duty in recommending it to the President, but it ought to be pointed out here that the law is very clear and explicit. The President failed to observe the law. Obviously, no one should misunderstand and think that this has anything to do with the specific incident before us, but we are dealing here with a problem that we could confront; the lack of drinking water supplies, a critical requirement for people, and a company that might not be like Ashland with either the will or the resources to make it available. I think it is a serious matter.

We will try to work with you on that, but would you please report to the Secretary that he really ought to tell the President this is what the law requires. And while we are all going to work hard on the comprehensive bill, until it changes this, there is a requirement to get that fund back up to $35 million. We also want to concurrently make sure it is available for drinking water. So if we could do both, get the fund up and get the legal interpretation clarified, at least then we would be in a position if such a circumstance occurred, it would be inexcusable that people didn't have drinking water because of our inaction in this circumstance.

My time is over. I am sorry. I apologize.

Senator Chafee.

Senator CHAFEE. Thank you very much, Mr. Chairman.

I want to ask Dr. Porter a couple of questions. I have read over what the existing SPCC regulations are as you set forth in page 3 and thereafter in your testimony. The thing that troubles me is, I don't know how an accident like this could have been foreseen or tested against.

If somebody had come to you on December 1st, somebody with occult powers and said, Dr. Porter, somewhere on the Monongahela River or on the Ohio River in Pennsylvania or West Virginia a tank is going to blow within 30 days. And this person's forecasting record was 100 percent. Now what could you have done? How can you prevent something like this? What would you have done outside of ordering every tank on those rivers to be drained, and I presume have an x-ray inspection? How can one test one of these tanks?

Dr. PORTER. Senator Chafee, it is an interesting hypothetical. I've asked myself roughly the same question, because we have tanks like this near and around rivers and all over this country. As Mr. Hall indicated, many of these industries are on rivers and canals because that is the way they move their oil around.

As I stated earlier, I want to do through increased regulation, and education to get people really focused on a preventative program—one that would prevent an incident from occurring in the first place. I think it is much easier, as I said.

It seems to me in this particular incident that a couple of fairly simple—and this is Monday morning quarterbacking admittedly—engineering controls could have prevented this from getting in the river. I think once it reaches the river if I understand your line of questioning, that it is very hard to place booms, for example, at

every stage of the river and have contingency plans for any conceivable turn of events. I think that is hopeless.

We are going to try to indicate it is very important if a tank is in a sensitive location, sensitive being near a major drinking water source, that people have a preventative program. For example, and I am not being critical of anybody here necessarily, but this dam being in close proximity mixed the oil very quickly. That made it a very sensitive situation, even more than usual perhaps, not to let the oil get in the river.

Senator CHAFEE. Am I correct in believing that the oil didn't get into the river from the Ashland facility but blew over into an adjoining facility where there is some kind of a massive drain pipe, and then it went down that drain pipe?

Dr. PORTER. Yes.

Senator CHAFEE. So this is an absolutely worst case scenario. Everything that could have gone wrong went wrong. First the tank didn't leak, it blew. Secondly, as I understand the tank itself, it was sort of a jet effect, the tank itself blew back 100 feet; am I correct?

Dr. PORTER. I am going to have Mr. Seif answer——

Senator CHAFEE. That's unimportant. But what happened was you had a wave effect.

Dr. PORTER. Yes.

Senator CHAFEE. So then it went over the natural barricade. Then it went into the neighbor's property, and there conveniently located was a massive drain that went into the river, or perhaps you would say inconveniently located. Then it got into the river, and there is a dam, what 100 feet down or something?

Dr. PORTER. Yes.

Senator CHAFEE. So that does the mix effect, as somebody was talking about mixing oil and vinegar. So I suppose by looking at the location one can say this is where if you take the worst case scenario something like this could occur.

But looking at a tank or 600,000 of these tanks across the country, I'm not sure how one can tell which ones are going to leak, which ones are going to blow.

Dr. PORTER. Senator Chafee, I can respond to that. I don't think you can, and I think that's the reason why we've required contingency plans, and we have dikes that will contain all the contents of a spill.

Senator CHAFEE. Then you have the wave effect.

Dr. PORTER. Well, I think you can only go so far. I think you are right if your line of questioning is that this was I think a very, very unique event. We have to think about how generally we want to draw the analogies from that unique event.

On the other hand, I think there are some things here that can be generally applied, such as people thinking, asking some "what-if" questions.

What we are finding as we begin to look at these SPCC around the country, is that they are cookie-cutter plans. People have a good plan, they Xeroxed it and they have applied it to a lot of tanks.

I think we have to push on people a little more to require them to think about the specifics of that situation. This was not the

middle of Wyoming in the desert as someone indicated earlier. It was next to the Monogahela with a drain pipe thing nearby.

So I don't think it is a hopeless task to ask the oil companies and others, and I suspect some are doing it as we sit here, to look at the specifics of these tanks because there are a lot of "what-if" questions you can ask. Maybe you don't have good answers for it, but I think in this case we would have found some answers.

Senator CHAFEE. I thought Mr. McClellan's testimony was helpful on the response. Unfortunately, I haven't time to get into that. The who is in charge situation it seemed to me Mr. McClellan was putting his finger on.

But I do find the preventive thing very disturbing. Now maybe it is the age of the steel, I'm not sure that Mr. Hall is exactly right. I know that he testified that old steel is just as good as new steel. But, we are constantly hearing, certainly with aircraft, about metal fatigue. So maybe if you are building tanks of old steel, over 30 years I think one of the pieces of legislation deals with.

Hydrostatic testing must be a good test, not just for leaks but whether the thing is going to blow.

Dr. PORTER. That's the reason again why I want to revisit these rules. As an engineer, I would tell you that hydrostatic testing is usually very helpful in cases like this. It is interesting that the first time they filled the tank is when it collapsed. So one can only speculate what would have happened had they filled the tank with water. Perhaps that would have given them some indication of the problem.

Senator CHAFEE. Thank you, Mr. Chairman.

I want to thank the witnesses.

Senator MITCHELL. Thank you, Senator Chafee.

Thank you, gentlemen for your testimony. It is very helpful to us.

The final witness will be Mr. Richard Golob, Director of World Information Systems at Cambridge, Massachusetts. Mr. Golob, welcome. We understand and regret that you were delayed.

STATEMENT OF RICHARD GOLOB, DIRECTOR, WORLD INFORMATION SYSTEMS, CAMBRIDGE, MA

Mr. GOLOB. That's true. I relied on the weatherman for my forecasting.

Senator MITCHELL. We are happy that you did make it, and we look forward to receiving your testimony.

Mr. GOLOB. I have testimony for your review in the outer chamber.

Senator MITCHELL. Your entire statement will be placed in the record. We ask you now to summarize it with the high points. Bring the mike close up to you so you can be heard.

Mr. GOLOB. Mr. Chairman and members of the subcommittee, thank you for the opportunity to speak to you this morning about the Ashland tank spill and other tank-related incidents.

My name is Richard Golob. I am director of World Information Systems in Cambridge, Massachusetts. I also serve as executive Editor of the Oil Spill Intelligence Report and as publisher of the Hazardous Materials Intelligence Report, both weekly newsletters

dealing with respectively oil spills and hazardous waste and hazardous materials management.

During the past ten years I have actively monitored oil pollution incidents and hazardous chemical spills, both within the United States and around the world.

Fortunately, given the large amount of oil transported and stored, major oil spills are low probability events; however, as the Ashland incident illustrates, major spills do take place, and they can have serious environmental and social consequences.

In terms of spill size, the Ashland incident is world class. During 1984 and 1985, the last two years for which we compiled annual spill summaries, only seven spills worldwide involved more than one million gallons of oil. In the United States the Ashland incident is the largest oil spill since an exploratory well south of Ranger, Texas blew out on November 6th, 1985 and spilled a total of 6.3 million gallons of oil.

In terms of spill impact, the Ashland incident is also world class. It probably has affected more people over a wider area than any other oil spill in the United States. It is America's version of the Sandoz chemical spill into the Rhine River in November 1986.

Based on an analysis of our spill database, we found that the cause of the Ashland tank spill is not unique. During the past ten years, several other above ground storage tanks have suffered structural failures, resulting in massive spills. In most of these incidents, the protective dikes or berms around each tank have not succeeded in containing all of the spilled oil. In some cases, the spilled oil has surged from the ruptured tank as a wave, and a portion of the oil has washed up and over the containment dike. Other times, the force of the surging oil has collapsed the dike or caused it to crack, allowing oil to escape outside the containment area.

Since most storage tanks are located near water, spilled oil that breaches a tank's containment system often ends up in a nearby river or harbor. The oil commonly enters the waterway through the drainage system of the tank's facility or an adjacent facility. Once the oil reaches the water, it becomes very difficult to recover. Although Ashland recovered only about 15 percent of the oil that entered the Monongahela River, that amount is fairly typical for a river cleanup.

While tank spills represent a serious environmental threat, tank fires and explosions also deserve attention, as they can cause not only casualties and property loss, but also environmental damage.

During firefighting efforts to bring a tank fire under control, the runoff, a mixture of oil, chemical foam, and water, will sometimes overflow or breach the containment dike and eventually empty through the drainage system into a nearby waterway.

Any investigation into above ground storage tanks should not be limited to petroleum tanks, as chemical tanks pose a more toxic threat to the environment. Although chemical tank spills seem to occur less frequently than petroleum tank spills, our database revealed several chemical incidents involving either a tank-related accident or a containment system failure that resulted in serious pollution.

While focusing our attention on the storage tank as a pollution source, the Ashland incident has also helped to identify a gap in

the pollution incident database. Although our database provides some insights into the frequency, magnitude, and cause of tank spills, the data available are not sufficient to determine the specific factors, whether tank age, volume, or material, responsible for structural failure or other problems.

As a first step in investigating the tank problem, I would recommend the establishment of a database on past tank incidents, analyzing them in detail and focusing on variables useful in a risk analysis.

I would also recommend a database on the numbers, types, and contents of above ground tanks in the United States. Without comprehensive data, efforts to understand and solve the tank problem may be ineffective.

To reduce the probability of another massive tank spill somewhere else, attention must be focused on all three of the following areas: prevention, containment, and response. Prevention will require construction standards for new tanks, as well as inspection and permitting requirements for existing tanks, especially those above a certain volume capacity, older than a specified age, within a certain distance from a waterway, or reassembled from another site.

As the Ashland incident and other tank spills illustrate, containment has been a weak link in minimizing environmental damages. Here too, construction standards for new dikes or berms, as well as retrofitting requirements for existing ones, would help reduce the possibility that spilled oil will flow over or breach the dike or berm. In addition, attention must be focused on drainage systems, as they have often served as a conduit for the spilled oil to the waterway.

If a tank ruptures and the containment system fails, then the response mechanism becomes even more critical in reducing the amount of environmental damage. A Spill Prevention, Control, and Countermeasure Plan designed especially for the facility, reviewed regularly by facility personnel, and implemented periodically with mock spill drills would help minimize the potential impacts of the spill through the rapid deployment of both containment and recovery equipment near the spill site.

While the Federal Government has no regulations currently that specifically address the construction and inspection of above ground petroleum tanks, some States, notably Florida, New York, Rhode Island, and South Dakota, have enacted legislation to regulate the tanks within their jurisdiction.

I doubt that Ashland's practices at the Floreffe terminal deviate from the oil industry's norm. Therefore, unless steps are taken to improve the prevention, containment, and response measures at similar facilities around the country, other major tank accidents can and will take place.

Once again, thank you for this opportunity to speak this morning.

Senator MITCHELL. Mr. Golob, that's a very interesting statement. I think all of the committee members will be very much interested in the full statement which will be placed in the record.

I was particularly struck by your comment at the bottom of page 1 of your statement that based on an analysis of prior spills you found that the cause of the Ashland tank spill is not unique.

Mr. GOLOB. Although the cause of the Ashland spill is still undetermined, the general cause of structural failure is not unique.

Senator MITCHELL. That's right, the fact of structural failure and that, as you say, in most instances it is the protective dikes or berms have not succeeded in containing the spill and that the existence of a drainage at an adjacent property is not unique.

Mr. GOLOB. It is not totally uncommon. Once again, you have to remember that oil spills are low probability events. They don't take place often. But when there is a major discharge such as that at the Floreffe terminal, then it is possible that the oil will spill onto an adjacent facility and out through a drainage system into a nearby waterway.

Senator MITCHELL. So someone familiar with details of prior spills could, at the very least, have anticipated this possibility and looked around and seen what existed at this place.

Mr. GOLOB. Most probably. However, at this terminal I doubt that there have ever been any major spills. And when I say major, I mean over 20,000. Therefore, they never had cause to concern themselves with that problem.

Senator MITCHELL. The most common cause of human problems is the failure to match information with the persons who are most likely to need it. This is probably one of those cases. Likely the persons directly involved at the facility would not have been aware of this past information.

Of course, that's one of the reasons why we centralize responsibility, supervisory responsibility in an agency which is intended to accumulate knowledge and expertise and to impart that knowledge to those who are directly involved.

Thank you very much, Mr. Golob. We appreciate your coming and know the difficulty you had getting here because of the weather.

Mr. GOLOB. I'm glad I finally got here.

Senator MITCHELL. That concludes the hearing, and we will work on legislation in this area with the other members of the committee in the near future.

[Whereupon, at 12:40 p.m., the committee was adjourned.]

[Statements submitted for the record follow:]

Statement of John R. Hall
Chairman and Chief Executive Officer
Ashland Oil, Inc.
Before the U.S. Senate Environmental Protection Subcommittee
Washington, D.C.
February 4, 1988

Chairman Mitchell, Senators, I appreciate the opportunity to represent Ashland Oil, Inc., before your Committee.

Ashland is the nation's largest independent refiner and a leading marketer of petroleum products to other independent marketers. We have been in business for 64 years. In the past 20 years, Ashland has diversified into a variety of businesses related to our primary energy and chemical operations. However, refining and marketing petroleum products remains our core business, from which, in a normal year, we derive substantial sales and profits. The supply and distribution of petroleum products requires the operation of 28 light oil product terminals within our marketing areas. These terminals, fifteen of which are river terminals, receive products from our refineries and store them until they can be moved out through the distribution chain. My statement describes our response to the recent spill at our Floreffe, Pa., river terminal. Ashland has operated this terminal safely since 1940, and it serves as a vital supply point for consumers of petroleum products in the Pittsburgh area.

Shortly after 5 p.m. on Saturday, January 2, 1988, a storage tank at the terminal ruptured suddenly and completely, releasing approximately 3.9 million gallons of diesel fuel. The sudden

collapse sent a tidal-like wave of diesel fuel surging over the terminal's containment dike, and the Environmental Protection Agency has estimated that approximately 750,000 gallons of the fuel crossed our property line and escaped through nearby storm sewers into the Monongahela River. The fuel subsequently flowed down 25 miles of the Monongahela and then entered the Ohio River. The path of the spill ultimately affected the water supply of suburban Pittsburgh and several communities downstream.

From the time of the tank's collapse, Ashland's first priority has been to spare no effort or expense to mitigate the effects of the spill. In this regard, the actions of Ashland's employees and contractors have included:

(1) **Immediate compliance with Ashland's emergency response plan.** As provided in the plan, this included notification of appropriate federal, state and local agencies and organizations. Specifically, the Ashland employee on duty at the terminal at the time of the collapse immediately called in the following order: (1) the terminal manager, (2) the National Response Center, as required by the Clean Water Act, and (3) Ashland's Safety Department representative on duty at the time. Upon his arrival at the scene a short time later, Ashland's terminal manager also called the National Response Center and was informed that the U.S. Coast Guard and U.S. EPA had already been notified of the incident. By the time the second phone call to the National

Response Center took place, local authorities were on the scene and had begun calling out emergency personnel.

We believe our personnel performed this notification promptly and that such prompt action allowed the participation of government agency experts at the earliest possible time.

(2) **Containment and cleanup of the spill.** We believe the actions of our employees and contractors, working in cooperation with the various governmental authorities involved, were instrumental in containing and recovering as much oil as possible under the circumstances and conditions which were encountered. In the first three weeks after the spill, the primary cleanup phase involved as many as 200 Ashland and contractor personnel, working in conjunction with the U.S. EPA and U.S. Coast Guard. Among the initial actions to contain and cleanup the spill were:

- o Hiring of contract cleanup crews with oil spill experience;
- o Use of the U.S. Coast Guard's oil spill strike force, brought to the scene at Ashland's expense via two U.S. Air Force C5A transport planes;
- o Placement of some 20,000 feet of floating containment booms on both the Monongahela and Ohio rivers;
- o Use of skimming barges to retrieve oil from the surface of the water;

- Use of barges to deflect oil into collection areas;
- Use of absorbent material on the water surface to soak up the oil;
- Use of vacuum trucks to retrieve fuel which collected near the shore;
- Frequent (more than once a day) helicopter overflights of the river to track the course of the spill and direct cleanup efforts;
- Retrieval of oil from containment dikes and terminal area;
- Cleanup of Pennsylvania Route 837 adjacent to the terminal.

Initial cleanup efforts were hampered by cold and windy conditions and a swift current. Also, a dam a few hundred yards downstream caused the oil and water to begin to mix, further complicating cleanup. To date we have recovered approximately 3.15 million gallons of diesel fuel from the terminal and the rivers. Of this amount, approximately 2.95 million gallons was recovered from the terminal, and approximately 204,000 gallons was retrieved from the water. Cleanup efforts have entered a secondary phase which will continue for the next three months. This phase includes weekly overflights of a 120-mile stretch of both rivers. Cleanup crews will be stationed at three points on a 60-mile stretch, ready to be dispatched as necessary.

The diesel fuel remaining in the river has dissipated to the point where it has become very difficult to track. Peak concentrations are in the very low parts per billion range.

(3) **Coordination and cooperation with government agencies.** Cleanup efforts were undertaken in conjunction with federal, state and local authorities, with the U.S. EPA and U.S. Coast Guard being most directly involved. We also communicated directly with various other governmental authorities not directly or continuously involved in the emergency response or cleanup effort. Through face-to-face meetings and detailed discussions, Ashland and its senior officers, including President Charles Luellen, myself and others, sought to obtain advice or suggestions as to additional actions we might take. We also assured these governmental agencies and officials of our dedication to the cleanup effort.

From the beginning, we have spoken candidly to all representatives of various federal, state, county, city, township and borough governments. Our participation here today and in similar hearings by other state and federal committees is indicative of our candor and cooperation. I want to assure you that this posture will continue unabated as your committee and similar bodies review this incident and consider its implications.

(4) **Another important aspect of our response to this incident involved extensive efforts to help maintain water supplies.** We cooperated fully with local water authorities and provided assistance to them in order to maintain normal water service or restore it as soon as possible. To assist affected communities, Ashland provided supplemental water supplies by truck and barge. We also provided supplies and equipment, such as treatment chemicals, pumps, pipes and related items to allow the use of alternate sources of supply. A more complete breakdown of our water assistance activities includes the following:

- Offering or providing assistance to more than 17 communities from the Pittsburgh area to Louisville, Ky.
- Rotating five barges, with a total capacity of approximately 2 million gallons, among affected communities
- Providing more than 7.6 million gallons of fresh water to affected communities
- Chartering towboats to ferry water barges
- Providing 4.8 million gallons of water to Wheeling, W.Va.
- Providing 1.6 million gallons of water to Sistersville, W.Va.
- Providing 1.3 million gallons of water to Maysville, Ky.
- Providing standby barges to Cincinnati, Ohio

- o Providing barges and boats to deflect oil away from water intakes
- o Reimbursing the National Guard for expenses incurred in transporting water
- o Providing approximately 160,000 gallons to Midland, Pa.
- o Providing pumps and other equipment and supplies at Ashland's expense to Robinson Township, Beck's Run and Midland in Pennsylvania; Huntington and Wheeling, W.Va.; and Chesapeake, Ohio
- o Authorizing the purchase of chemicals to treat water supplies of all affected water systems
- o Providing a towboat for use by the EPA as a mobile water quality testing laboratory
- o Using company aircraft to fly water samples for testing in Harrisburg, Pa.

(5) **Willingness to accept financial responsibility.** Within three days of the spill, Ashland communicated to the public, via a news conference in Pittsburgh, its commitment to cleanup, its acceptance of responsibility for the incident and its willingness to pay all appropriate cleanup costs. Less than a week after the incident, we delivered a $210,000 check to Allegheny County as an advance partial payment against county expenses related to the spill. In mid-January, we delivered a $165,000 check to the Western Pennsylvania Water Company covering similar partial advances. Furthermore, advance payments against expenses have

also been made to the Floreffe, Pa., Fire Department, the local chapter of the American Red Cross, the Salvation Army, the National Audubon Society, and a wildlife rescue group, among others.

As soon as the incident occurred, we commenced work with our insurance carrier to establish a process to handle claims from individuals, businesses and government agencies. Ten days after the incident, a claims adjuster had been engaged and had opened an office in the Pittsburgh area. In mid-January, a toll-free telephone number was established for those outside the Pittsburgh area who wished to file a claim. Subsequently, the claims adjuster opened an office in Steubenville, Ohio, to process claims from that area.

Less than two weeks after the incident, Ashland itself had opened a Pittsburgh service office, under Corporate Vice President Philip W. Block, to (1) coordinate efforts with individuals and governmental agencies engaged in cleanup and response-related activities and (2) to oversee and coordinate the processing of all claims. We have also sent letters to families which were evacuated the evening of the spill and notified them of the address and telephone number of our claims adjustor. The letter invites them to submit a claim for actual expenses incurred due to the evacuation.

Through this office, a mechanism has been established for working with the various state and federal agencies involved in processing claims from numerous federal, state, county, municipal and volunteer organizations which have participated in response and cleanup.

(6) **Assessment of environmental impact.** Ashland also has demonstrated its concern over this incident through a $250,000 grant to the Center for Hazardous Materials Research at the University of Pittsburgh. The grant provides funding for an independent assessment of the ecological and environmental impact of this incident. It will also provide an audit-type assessment of the response and cleanup effort with a view to applying the lessons learned.

We also have authorized a study of the long range environmental impact to be conducted by Battelle Memorial Institute and ERT, an environmental consulting firm. The study will examine any long-term effect of the spill on marine life as well as the wildlife whose natural habitat is located along the river or its wetlands.

(7) **Investigation of the cause of the tank collapse.** Ashland is conducting an internal review of the circumstances surrounding the tank's construction and collapse. In addition, Ashland has engaged Battelle Memorial Institute of Columbus, Ohio, to conduct an independent investigation into the

collapse. As a result of its internal review, Ashland has previously announced that company employees departed from optimal procedures in permitting, constructing and testing the tank. Specifically, Ashland has announced:

- Ashland personnel did not secure a written permit before constructing the tank. Instead, they apparently relied on a conversation where they believed "verbal" approval had been given.

- The tank was reconstructed at the Floreffe site using steel more than 40 years old which previously had been used in a tank at an Ashland facility near Cleveland.

- Ashland employees used an alternate testing method rather than the preferred full hydrostatic test.

- Ashland senior management learned on January 22, 1988, that x-rays taken during the construction process revealed a number of possibly defective welds in the tank. This information was immediately delivered to Battelle, and state and federal agencies were notified of this action. Ashland has since been notified by Battelle that none of the x-rays involved welds in the area where the rupture is believed to have begun.

We do not yet know why the tank collapsed or whether any of these factors were related to the cause of the collapse. These and all other factors which may have contributed to the incident are the subject of a number of reviews currently under way.

Ashland engaged the Battelle Institute because of its pre-eminent scientific capabilities. Until Battelle's work is complete, we believe questions about the cause of the collapse would require speculation not necessarily supported by the facts.

At the request of Representative Walgren, examination of the steel and other tank components also will be conducted by Dr. Richard Wright and the staff of the National Bureau of Standards. In addition, Ashland is also cooperating with the Tank Collapse Task Force appointed by Pennsylvania Governor Casey.

Comprehensive reviews of Ashland's environmental programs are currently being conducted, or will be undertaken shortly, by the U.S. EPA, OSHA, the U.S. Coast Guard, Pennsylvania's Department of Environmental Resources and the Allegheny County Health Department. Ashland pledges to cooperate with these and any other related reviews.

In closing, let me say that Ashland Oil has operated in the Ohio River Valley for more than 60 years without an incident of this type. We are proud of this record, and we are acutely embarrassed that this incident has happened to our company.

However, we are proud of the valiant efforts our employees made to try to contain and clean up the spill and to help municipalities with water supplies. We're proud also, because we know that, despite some questionable decisions by company employees, Ashland is a responsible compa[illegible] We hope you will agree that Ashland has handled this matter [illegible] a very responsible fashion, and we pledge to continue to do so.

Thank you for allowing me to make this statement.

ASHLAND OIL, INC. • POST OFFICE BOX 391 • ASHLAND, KENTUCKY • 41114 • PHONE (606) 329-3333

JOHN R. HALL
Chairman and
Chief Executive Officer
(606) 329-3621

March 10, 1988

George J. Mitchell
United States Senator
United States Senate
Committee on Environment and
Public Works
Washington, D. C. 20510-6175

Dear Senator Mitchell:

This letter is in response to the questions you sent to me along with your letter of February 26. A copy of your letter of February 26 is attached for ready reference.

We do not believe there was any willful misconduct involved in the accident at Floreffe nor do we believe there was any conduct that might be termed gross negligence. As I stated in my testimony, there are certain things that we wish the project team had done differently. However, until the Battelle report is complete, we will not be certain that any of those decisions were related to the failure of the tank.

Our insurance coverage is not affected if a judge or jury finds gross negligence or willful misconduct. We are very confident our coverage applies in this situation.

I hope to have an opportunity to visit with you again.

Sincerely yours,

John R Hall

JRH:jd

Attachment

QUENTIN N. BURDICK, NORTH DAKOTA, CHAIRMAN
DANIEL PATRICK MOYNIHAN, NEW YORK
GEORGE J. MITCHELL, MAINE
MAX BAUCUS, MONTANA
FRANK R. LAUTENBERG, NEW JERSEY
JOHN B. BREAUX, LOUISIANA
BARBARA A. MIKULSKI, MARYLAND
HARRY REID, NEVADA
BOB GRAHAM, FLORIDA
ROBERT T. STAFFORD, VERMONT
JOHN H. CHAFEE, RHODE ISLAND
ALAN K. SIMPSON, WYOMING
STEVE SYMMS, IDAHO
DAVE DURENBERGER, MINNESOTA
JOHN W. WARNER, VIRGINIA
LARRY PRESSLER, SOUTH DAKOTA
PETER D. PROWITT, STAFF DIRECTOR
BAILEY GUARD, MINORITY STAFF DIRECTOR

FEB 29 1988

United States Senate

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
WASHINGTON, DC 20510-6175

February 26, 1988

Mr. John Hall
Chief Executive Officer
Ashland Oil Company
P.O. Box 391
Ashland, KY 41114

Dear Mr. Hall:

Thank you for appearing before the Subcommittee on Environmental Protection, Senate Committee on Environment and Public Works, on February 4, 1988.

The Subcommittee has additional questions which I am forwarding with this letter. I would appreciate your written response to these questions within two weeks, so that they can be made part of the official hearing record. If you have any questions, please contact Kate Kimball at (202) 224-6691.

Sincerely,

George Mitchell

George J. Mitchell
United States Senator

Enclosure

QUESTION FOR MR. HALL

Mr. Hall, based on what the Committee's staff has been told and what has been reported in the press, it would appear that a case of gross negligence or willful misconduct could perhaps be made against Ashland.

Many liability insurance policies deny coverage in cases of gross negligence or willful misconduct.

Is Ashland covered in the event a judge or jury finds gross negligence or willful misconduct? And, will Ashland fully compensate injured parties, including state and local governments, regardless of whether it has insurance?

ASHLAND OIL, INC. • 1025 CONNECTICUT AVE., N.W. SUITE 507, WASHINGTON DC 20036 • PHONE (202) 223-8190

WILL HADDELAND
Director
Federal Government Relations

February 19, 1988

TELEX: 89-7419
Corporate Office
P.O. Box 391
Ashland, KY 41114
(606) 329-3333

Ms. Kate Kimball
Environmental Protection Subcommittee
United States Senate
Washington, DC 20510

Dear Kate,

Attached is the written response of Ashland Oil Chairman John Hall to the written questions submitted to him by Senators Durenberger and Pressler.

If I can be of further assistance, please call me.

Sincerely,

Will Haddeland

WGH/frs

attachment

copy to: Jimmie Powell

REVISED RESPONSES TO SENATOR DURENBERGER'S QUESTIONS

Q. Can you describe for us the threat to ground water and what you are doing and will do to prevent widespread ground water contamination?

A. Ashland has submitted proposals to EPA and DER for the clean-up of oil-contaminated soil as well as for ground water monitoring and, if necessary, remediation. There is obviously some soil contamination, which, if not attended to, would present a threat of ground water contamination. However, Ashland is working with the EPA and DER to prepare a program to eliminate the soil contamination and thus prevent such ground water contamination. In addition, Ashland is working with the same agencies on a program of ground water monitoring to determine whether there has been any ground water contamination as a result of the January 2 incident and to alleviate any such contamination, as necessary. There is a layer of clay, with low permeability, averaging perhaps 8 feet or more in thickness, beneath the topsoil at the site. This is a factor that may prevent or minimize ground water contamination while clean-up continues on the surface.

Q. Did Ashland personnel know about a report of faulty welds in tank 1338 prior to putting the tank in service? If so, why did Ashland decide to fill the tank anyway?

A. Attached is a copy of a report or radiographic examination of certain welds in the reconstructed tank 1338. Mr. Hall has already stated that Ashland's normal procedures for the examination of such welds were not followed in this instance. As soon as the senior management of Ashland saw the report, Ashland sent the radiographs and the materials generated by the outside radiographic firm to Battelle Memorial Institute, which is investigating the cause or causes of the tank collapse. Simultaneously Ashland voluntarily notified the investigating governmental agencies of its action and of the existence of a question regarding the welds. Subsequently Battelle advised Ashland that none of the radiographs in question were taken in that portion of the tanks where the tank had opened up.

Both Ashland and various governmental agencies are presently investigating what actions should have been taken in response to the information supplied by the radiographic firm, the actions which were taken in response to that information and why the persons involved acted as they did. Because of the complexities of the issues involved, Ashland's information is not complete at this time. Therefore, any comment regarding why those persons responded as they did would be speculative and unsupportable.

In addition, since the Battelle study and other similar studies as to the cause of the tank collapse are still in progress, it is not known whether the welds had any causal connection with the tank collapse.

Q. What measures did Ashland or its contractors take to mitigate the damage to wildlife?

A. Ashland and its contractors worked assiduously, under the guidance of the Coast Guard, the EPA and other interested agencies, to stem the flow of diesel fuel downstream and to remove as much diesel fuel from the river as possible. These measures included numerous booms, vacuum trucks and absorbent pads. Also, Ashland's contractors have conducted continual overflights of the river to identify areas on the river banks where diesel fuel had accumulated and eddies where such materials were accumulating. As soon as such locations were identified, clean-up crews were immediately dispatched. Obviously, each of these actions had the effect of reducing both the incidence and the severity of damage to wildlife. In addition, Ashland cooperated with concerned governmental and private entities to provide facilities where affected wildlife could be decontaminated, and Ashland has to date advanced nearly $30,000 to repay the cost of such efforts to assist affected wildlife.

Q. We have heard conflicting reports regarding the amount of gasoline that was released because of damage to a second tank or to pipelines at the terminal. EPA has told our staff that it was 20,000 gallons of gasoline that was released from a tank pierced by shrapnel thrown out when the first tank exploded. On the other hand, your people tell us it was about 100 gallons that leaked from a ruptured pipeline. What, in fact, was the size of the gasoline release and how did it occur?

A. We do not know the basis for any estimate that 20,000 gallons of gasoline was released from a damaged tank. While information regarding events that occurred at the terminal on the night of January 2 is necessarily confused because people were operating under what they perceived to be emergency conditions, a comparison of tank content records pre-dating the tank collapse with those post-dating the spill demonstrates that no discernible amount of gasoline escaped from any tank. In addition, we have identified no damage to interconnecting piping which would have resulted in any gasoline leak from the piping.

Q. What's the excuse for not completing a hydrostatic test?

A. With the benefit of hindsight, we believe it would have been preferable if the people involved in the project had conducted a full hydrostatic test of the tank. However, a number of investigations are being conducted by Ashland and various government agencies regarding what testing of the tank was conducted before the tank was put into service and the reasons behind the decisions which were made. Since those investigations have not been completed, no purpose would be served by speculating as to the reasons why a full hydrostatic test was not completed. We do know that at one time consideration was given to using river water to test the tank but that problems were perceived regarding the pump pressure that would be required to do so. An exhaustive

analysis of the reasons why the tank was not fully hydrostatically tested will have to await the completion of the ongoing investigations. Of course, since the causes of the collapse are still being analyzed by Battelle and others, no conclusion can be drawn regarding the causal relationship, if any, between the testing methods used and the cause of the tank failure.

ANSWERS TO SENATOR PRESSLER'S QUESTIONS

Q. Was the tank tested before it was filled with diesel fuel? If not, why wasn't it?

A. The steel for the tank was inspected and ultrasonically tested before the tank was dismantled at its original location. Soil compaction tests were completed on the new base constructed for the tank. The reconstructed tank was checked for settlement of the base and leaks around the piping by placing approximately five feet of water in the tank. In addition, welding on the tank was tested during construction using the alternative oil penetration test referenced in API 650 for circumstances in which water for full hydrostatic testing is not available. However, since various investigations by Ashland and by various government agencies regarding the actions taken to test the tank and the reasons for such actions have not been completed, any conclusions regarding the reasons why other possible testing methods were not employed would be speculative and, therefore, counterproductive at this time. Since the cause or causes of the tank collapse have not yet been determined, it would, of course, not presently be possible to determine whether any alternative or supplemental testing methods would have had any impact upon the occurrence of this incident.

Q. Did your company follow all of the present regulations on above ground storage tanks?

A. Ashland employees applied for a permit from the Allegheny County Fire Marshal for the construction of the tank. Although no written permit was obtained, construction of the tank went forward, apparently in the belief that verbal authorization to proceed had been given. The Fire Marshal had acknowledged that even issuance of a formal written permit would not have had a material effect in preventing the tank collapse. The dike system around the tanks was found by EPA to have adequate containment capacity. We believe we complied with all EPA regulations, as well as with OSHA regulations, that limit the average height of the dikes to six feet.

Q. What recommendations would you give the committee on how it could prevent future leaks from above ground storage tanks?

A. Ashland does not feel that it is presently in an appropriate position to make recommendations to the committee on future legislation. Leaks and spills of small to moderate quantities of petroleum product inevitably occur from time to time. EPA's

current regulatory program appears to adequately cover these situations. A tidal-wave-like surge of petroleum product from a suddenly ruptured tank is a rare event, the mechanics of which are not yet fully understood. After studies have been completed on the cause of this most recent event, it may be possible to formulate recommendations.

STATEMENT OF
J. WINSTON PORTER
ASSISTANT ADMINISTRATOR FOR SOLID WASTE
AND EMERGENCY RESPONSE
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

FEBRUARY 4, 1988

Good morning, Mr. Chairman and members of the Subcommittee. I am J. Winston Porter, Assistant Administrator for Solid Waste and Emergency Response at the U.S. Environmental Protection Agency. I am pleased to have the opportunity to appear at this hearing. My remarks this morning will focus on three areas: the provisions of EPA's Oil Spill Prevention, Control and Countermeasure Program, regulatory provisions for response to and notification of oil spills, and future EPA initiatives in this area.

The Spill Prevention, Control and Countermeasure (SPCC) regulations were finalized on December 11, 1973, and amended on March 26, 1976. These regulations are designed to prevent discharges of oil from certain onshore and offshore facilities and to contain such discharges when they occur. The principal authority for the SPCC program is section 311(j) of the Clean Water Act, which requires the President to issue regulations establishing procedures, methods, and equipment to deal with these events. That authority was delegated to the Administrator of the Environmental Protection Agency by Executive Order 11735.

Facilities regulated under the SPCC program are non-transportation-related facilities with buried storage capacity in excess of 42,000 gallons or above-ground storage in excess of 660 gallons in a single tank, or of 1320 gallons in aggregate, if these facilities could be reasonably expected to discharge oil into navigable waters. Examples of such facilities include refineries; bulk storage terminals; onshore and offshore production facilities; and bulk oil consumers, such as office buildings, schools, hospitals, and farms. The number of facilities subject to SPCC regulations is not known precisely, but estimates indicate that there may be as many as 600,000 facilities.

Regulated facilities are required to prepare plans for the prevention and remediation of oil spills. Each plan must be prepared within six months of the beginning of the operation of the facility and implemented no later than six months after that. Whenever new tanks are installed at a facility, the SPCC plan must be amended at the time of the change and implemented within six months. Under the regulations, each plan must be certified by a registered professional engineer; maintained at the facility and available for inspection by EPA during working hours; submitted to EPA for review and possible amendment if, in one year, there is a spill of over 1000 gallons or 2 spills that cause oil sheens; and reviewed and evaluated every three years by the owner or operator of the facility.

The SPCC regulations require that the plan be carefully thought-out, prepared in accordance with good engineering practices, and that it have the full approval of facility management at a level high enough to commit the necessary resources. The plan must contain a discussion of the facility's conformance the requirements specified in the regulations as well as the guidelines. These regulations stress that the plan be tailored to specific site conditions, that it address potential equipment failures at the site, and that it identify appropriate containment or diversionary structures to prevent the spilled oil from reaching navigable waters. There is no requirement for prior EPA approval or concurrence on this plan, nor is there a requirement for the plan to be submitted to EPA.

In the case of oil tanks, such as those at the Ashland Oil Company facility, SPCC regulations contain specific guidelines and requirements. For example, a secondary containment structure should be constructed that is capable of containing the entire contents of the largest single tank, plus precipitation, and diked areas should be sufficiently impervious to contain the spill. The regulations provide that above-ground tanks, such as the one that ruptured in this incident, should be subject to integrity testing on a periodic basis. Tanks should be, as far as practical, fail-safe engineered, or made into a fail-safe engineered tank.

These features of the facility, which must be documented in the plan, are checked by inspectors on site visits. SPCC inspections are generally carried out by EPA contractor personnel, with EPA Regional staff determining violations and enforcing the requirements of the regulations. Inspectors make sure that the plan is in good order and that it accurately reflects site conditions, and that the secondary containment structures are in compliance with the regulations.

As you know, Mr. Chairman, the Agency did not inspect the Ashland Oil facility prior to the January 2, 1988 spill. EPA inspects only a limited number of facilities because it has found that a large percentage of inspected facilities are in compliance with the regulations. We have conducted more than 25,000 SPCC inspections since 1976.

When EPA finds that a provision of the SPCC regulations has been violated, it is empowered to assess civil penalties. Penalties can be levied against operators who fail to prepare a plan or who violate any of the implementation procedures. Penalties of up to $5000 per day may be assessed, taking into consideration the gravity of the violation and good faith efforts to achieve compliance. Notice and opportunity for a hearing are provided, as is an opportunity to appeal any penalty assessed to the Administrator. The Clean Water Act also provides other penalties for discharging into the navigable waters.

Before proceeding to a discussion of EPA initiatives for addressing future spills of this nature and magnitude, it may be useful to put the Ashland Oil spill in the context of past oil spills. Since 1981, there have been at least two dozen oil spills, in which the quantity released exceeded one million gallons, the amount released at the Ashland Oil facility. The majority of these spills occurred in coastal waters.

Although the Ashland Oil spill is a significant event by any measure, there have been several larger inland oil spills in the past. EPA records indicate that these spills have occurred from a variety of sources. In 1969, the collapse of a ten-year-old tank caused an 8.5 million gallon spill of crude oil in Seewarren, New Jersey. The oil splashed over the retaining dikes in a ten-foot wave and flowed into surrounding marshes and creeks. During Hurricane Agnes in 1972, oil storage lagoons near Pottstown, Pennsylvania, became inundated, and this caused the release of six to seven million gallons of floating black sludge. An oil tanker collision in the Delaware River near Marcus Hook, Pennsylvania, released 13 million gallons in 1975. In Eastland County, Texas, a 1985 oil well blowout caused a release of over 13 million gallons over a period of eleven days.

Although the SPCC program deals primarily with prevention and contingency planning, the Clean Water Act authorizes the promulgation of requirements for oil spill notification and response as well. The Discharge of Oil rule requires the person in charge of a vessel or facility to report to the National Response Center any oil spill that causes a sheen or discoloration on the surface of the water. Another rule, the National Contingency Plan, establishes guidelines for the development and implementation of State, local, and Regional oil spill contingency plans. Under the National Contingency Plan, the Federal government provides an On-Scene Coordinator to undertake response action if no willing and capable responsible party can be found and the State and local governments are not able to respond. EPA conducted 64 oil spill cleanups during fiscal year 1987. EPA's On-Scene Coordinators have jurisdiction over inland oil spills. When another party initiates the response, the On-Scene Coordinator may oversee the work and provide technical support to ensure a prompt and complete cleanup, as was the case with the Ashland Oil spill. EPA conducted on-scene oversight of 404 oil spill cleanups during fiscal year 1987.

EPA is currently considering several approaches for strengthening both its oil spill prevention, response, and contingency planning programs. As a first step, the Agency is convening a task force to determine what initiatives can be taken to strengthen existing regulatory programs in order to

improve oil spill prevention measures, contingency plans, and response actions. The task force will include persons from EPA Headquarters and Regions, as well as representatives from the U.S. Coast Guard and States with a large number of facilities subject to the SPCC regulations. The task force will carefully consider other related efforts, for example, the study by the National Bureau of Standards regarding the reasons for the Ashland Oil tank failure, the Region III Response Team's review of this incident, and Ashland Oil's own internal review of this matter.

Among the regulatory provisions that the task force will be examining are several parts of the existing SPCC program. The task force will recommend ways to amend the SPCC regulations, if appropriate, to address areas such as prevention of tank rupture, the wave effect that contributed to the Ashland Oil spill, and high risk potential in areas of sensitive ecology or limited drinking water supply. The task force will also consider the possibility of changing certain SPCC provisions to make them requirements rather than guidelines. The task force will re-evaluate the current flexibility that the facility has for plan development and certification.

In addition to the options mentioned above, the task force will examine the statutory and regulatory provisions of other Federal and State programs for useful analogies. A close exami-

nation of the Underground Storage Tank Program, for example, may yield ideas for new approaches to prevent releases due to corrosion or structural failure.

Thank you, Mr. Chairman. I hope that it is evident from my testimony that EPA is committed to exploring ways to prevent oil spills such as occurred on January 2, 1988. We believe that the SPCC program defines the appropriate Federal role for release prevention, control, and response for above-ground petroleum tanks and that any new policies and requirements can be implemented within the context of the existing authorities.

I would like to provide you with a Statement for the Record by James M. Seif, Regional Administrator for EPA's Region III, which I think may be of use to the Subcommittee in its inquiry, and I will be happy to answer any questions you may have.

STATEMENT FOR THE RECORD
JAMES M. SEIF
REGIONAL ADMINISTRATOR, REGION 3
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

FEBRUARY 4, 1988

Mr. Chairman and Members of the Subcommittee, I am James M. Seif, Regional Administrator of the Middle Atlantic Region of the U.S. Environmental Protection Agency. I am pleased to discuss the recent massive oil spill in Floreffe, Pennsylvania, and I hope that the work of this Subcommittee will decrease the likelihood of future spills and increase the ability of industry and government to contain and respond to any spills that may occur.

It is appropriate that the Committee will receive testimony from both industry and government at all levels, because it is the combined public and private sectors which must confront this very important public health and environmental issue.

As a native Southwestern Pennsylvanian, with strong roots still in this community, I can assure you that my interest in the spill and its effect on the area's people and environment go beyond my responsibilities as a Federal environmental manager from Philadelphia.

I would like to discuss with you:

- the nature of the spill;
- the Federal statutory authority under the Clean Water Act, including EPA's interim findings at a recent field inspection of Ashland Oil's Floreffe facility;
- EPA's initial and continuing response;
- the impact on numerous public water supplies and on the environment, both here in Pennsylvania and downstream;
- the cooperative nature of the cleanup among Ashland Oil Company and many Federal, State and local agencies; and
- the scope of EPA's ongoing investigation.

A Massive and Sudden Oil Release on January 2, 1988

Although there remain many unanswered questions about what happened, we know that approximately 3.7 million gallons of diesel fuel was rapidly released from a recently reconstructed tank at Ashland Oil's Floreffe facility late in the afternoon of January 2, 1988. It appears that the sudden and complete collapse of the tank caused upwards of one million gallons of the escaping diesel fuel to immediately pour up and over the on-site containment dikes and enter the Monongahela River at mile point 24.5 through a drainage system on an adjacent property.

The oil plume moved rapidly down the Mon River due to the relatively swift river flow, estimated to have been greater than 3 knots. We know that the plume reached Number 3 lock and dam almost immediately and Number 2 lock and dam (mile

point 10) within hours, and that the flow of the plume over the dams emulsified the diesel fuel, dispersing it in a much lower concentration to a depth of approximately 15 feet.

It is likely that the unpreparedness of Ashland Oil to contain and counter the spill, coupled with the severe winter weather and time of night, prevented the recovery of a much larger portion of the released diesel fuel prior to its passage over and emulsification at locks and dams 3 and 2. Unfortunately, the existing conditions made the complete recovery of the plume extremely difficult if not impossible. These conditions include river speed, weather, icing conditions, time of day, proximity to the dams, and the dispersable nature of diesel fuel. Thus, Ashland Oil, working closely with EPA and many other agencies since the morning of January 3, has been in the regrettable position of trying to minimize the damage and hardships caused by the spill rather than containing it at or near its source.

The severe river and weather conditions in the first few days after the spill further diminished the prospects for recovery of the plume as it moved downstream. As of this date we believe that almost all that can be recovered from the river has been recovered--approximately 138,000 gallons--leaving approximately 640,000 gallons in the river environment which will probably never be recovered. While I do not know how much Ashland Oil has spent in the cleanup and community

assistance, government agencies have already spent more than $3 million as a result of the spill. I understand that the Pennsylvania Emergency Management Agency will assist communities in seeking reimbursement for their costs.

Mr. Fields is able to provide today information about the incidence and size of oil spills nationwide. By any measure, however, we know that the Ashland Oil spill at Floreffe is one of the largest inland spills that EPA has ever encountered. While there are, unfortunately, several oil product spills each year in the million gallon range, most of these are of crude oil, which floats better, and in coastal or harbor waters, making them more readily contained with booms and related equipment.

Section 311 of the Clean Water Act

The Environmental Protection Agency's regulation of oil storage tanks requires a detailed prevention plan rather than technical requirements for the design, construction and testing of the tanks. Guidelines which accompany EPA's regulations do, however, suggest that tanks be periodically tested for structural integrity.

Section 311 of the Clean Water Act does establish a Federal program aimed at preventing and responding to the release of petroleum products to the surface waters of the United States. It is administered jointly by EPA and the U.S. Coast Guard: the Coast Guard administers the response fund, while the two agencies have designated which will be responsible for cleanup

of spills in each stretch of river and coastline throughout the nation.

In general, EPA is responsible for responding to spills in inland waters, including the Monongahela River. In practice, the initial response is made by the agency or agencies whose personnel are first able to arrive on scene, with the actual recovery conducted by specialized contractors hired by the responsible private party or one of the two Federal agencies. It is encouraging that a growing number of State and local emergency response agencies, with the technical support of EPA, the Coast Guard and the Federal Emergency Management Agency, are developing the capabilities to respond to environmental emergencies such as oil spills.

The Clean Water Act and EPA's regulations have long recognized the main lesson of this spill, namely that it is much preferable to prevent or contain a spill on-site than to attempt to clean it up afterward. Thus, the owner of each above-ground oil storage tank larger than 660 gallons is required to prepare and implement a detailed, site-specific Spill Prevention, Control and Countermeasure Plan (SPCC). An SPCC Plan has many elements, including:

- the design and construction of adequate physical barriers to prevent release of spilled oil to surface waters;
- the training of personnel and response contractors to detect, report and counter spills;
- a procedure for prompt notification of designated response agencies, such as EPA, the Coast Guard and other State and local agencies; and
- review and certification by a registered professional engineer.

EPA has conducted a field inspection to help determine Ashland Oil's compliance with the SPCC regulations at the Floreffe facility, and we were pleased to provide staff of this Subcommittee a copy of our report and a thorough briefing on January 15. Although we have not yet reached final conclusions about this important compliance issue, our field inspection shows a number of significant findings:

- sufficient storage capacity existed within the secondary containment area to contain the entire volume of the collapsed tank;
- a surging wave-like release of diesel fuel over the lowest wall of the containment dike was the most likely cause for the release to the River;
- the SPCC plan for the Floreffe facility has inconsistencies concerning the volumes of tanks and containment areas; and
- the SPCC plan does not have a site-specific contingency plan for responding to oil spills.

EPA's review of the inspection report will very soon lead to conclusions about overall compliance with the SPCC regulations. In cooperation with the U.S. Department of Justice, EPA will then decide about the need for, and extent of, enforcement action against Ashland Oil. I understand that the Commonwealth of Pennsylvania is conducting its own compliance investigations, and I want this Subcommittee to know that EPA, the Commonwealth and other agencies are sharing information to speed up these investigations and to avoid duplication of effort.

EPA's Cleanup Oversight is What the Law Requires

On the evening of January 2, EPA was notified by the Coast Guard Marine Safety Office in Pittsburgh of the release at Ashland's Floreffe facility. During that evening, the Coast Guard official on scene conducted an assessment of the spill and performed initial oversight of Ashland's response. Although I believe it is apparent that the company was not prepared at the moment of the release to contain and counter the spill at the site, Ashland Oil has done a good job since then, in cooperation with many State, Federal and local agencies, to mitigate the downstream impacts.

I want to emphasize that I am confident that EPA's ability under Section 311 of the Clean Water Act to take over the cleanup at any time, including EPA's ability to recover cleanup costs, and the likelihood of bad publicity for the company probably influenced Ashland Oil's commitment to perform satisfactorily after the spill reached the Mon.

When EPA's On-Scene Coordinator arrived early in the morning of January 3 from his post in Wheeling, West Virginia, representatives of Ashland Oil made a clear commitment to him to conduct a thorough cleanup. From the outset, Ashland Oil--primarily through specialized cleanup contractors--has done whatever has been directed by EPA.

Of course, a mere assertion of willingness by a responsible party is certainly not enough to permit its performing the

cleanup: we believed then, however, and continue to believe, that the company also has the financial and technical capabilites and the desire to conduct the cleanup. Before deciding that the cleanup should be conducted by Ashland Oil under Federal supervision, I met with the company's President, Mr. Charles Luellen, in the presence of EPA's On-Scene Coordinator, to try to gauge the depth of Ashland Oil's commitment and capability. Mr. Luellen assured me that Ashland Oil would do whatever EPA, after consultation with our colleagues in other agencies, directed it to do. In fact, in my presence he authorized company payment for barge-delivered and pipe-delivered water to several municipalities even before they made the formal requests for assistance.

Beyond that, and preparing for the worst, on that same morning, I activated an account number which would have speeded up a Federal takeover if it had become necessary.

Mr. Chairman, I am well aware that a number of respected government officials urged EPA to declare the spill to be a "Federal spill" and thereby relieve Ashland Oil of its cleanup responsibilities. Having been on call in the Governor's Office on that first morning of the Three Mile Island nuclear accident, I understand how Governor Casey and others responded to this immediate need for a total mobilization of whatever resources were required to protect the citizens and environment of Allegheny County and its downstream neighbors. In fact, this confidence expressed in EPA's ability to get the job done was very gratifying.

I was on scene myself when many of these requests were made, and I conferred several times with EPA Administrator Lee Thomas in deciding that Federal supervision of Ashland Oil's cleanup was equivalent in every respect to a Federal cleanup. I want to assure you that EPA was, and remains, prepared to take over the cleanup the instant that the company's willingness or capacity fall short of what is required. This continually reviewed finding is what the Clean Water Act requires of me. Now, more than three weeks after the release, I believe that this has thus far been the correct judgment, both practically and legally.

Three practical considerations which influenced my decision were:

- The pool of specialized cleanup contractors hired by Ashland Oil are generally the same contractors available to EPA;
- We were, in fact, in charge, since under EPA's supervision, Ashland and its contractors were doing everything requested of them; and
- The Federal oil response fund is limited in size; it would therefore be irresponsible to deplete it when adequate funding was readily available and in use.

Protection of Water Supplies Has Been Our Focus

My experience at EPA brings me to agree wholeheartedly with the observations of many area citizens and local government officials that we do not appreciate the importance of a healthy water supply until it is threatened or interrupted by an emergency. For this reason, the primary focus of our water monitoring,

interagency deliberations, technical assistance an overall public health responsibility has been the provision of potable water to the affected communities. It is a measure of much professionalism and hard work by hundreds of people, especially under the severe weather conditions confronting us earlier this month, that water supply contamination and disruption was kept as low and isolated as it was. While I do not intend to understate the extreme distress caused in several communities by service interruptions, the facts are that water supply intakes were closed prior to contamination of treatment facilities, that the public was not exposed to unhealthful levels of oil or chemicals from the spill, and that alternative means of supply were made available in most cases within 24 hours. The residents served by Robinson Township Water Authority were without water for some period, while supply by barge and from other sources was being put into place. The people with direct water supply responsibility were of course aided by thousands of Western Pennsylvanians who abided by strict conservation measures.

Attachment 1 summarizes the duration of river intake shut down at water treatment plants in the tri-state area. Many of the treatment plant shutdowns were done as a precaution based on the monitoring data just upstream of the water intakes. Further, alternate sources of supply were available for most of the days of shutdown through conservation, interconnections with other suppliers, barge or water buffaloes. Local water

supply officials, with technical assistance from State and Federal agencies, made the key operational decisions on when to shut down water treatment plants, how to treat, when and how to conserve, how to interconnect with alternate supplies and when to return treatment plants to service. Local officials, too, probably felt the brunt of the public's anguish and frustration during the first days of the response and this is especially so here in Allegheny County.

I hope that this Subcommittee receives testimony from local officials concerning the very practical decisions that were made about the provision of public water supplies. I want to commend the skill and energy with which county and local government responded, and hope that the unfortunate experience of the past few weeks will improve our ability to serve the public during emergencies. EPA will provide this Subcommittee a more complete summary of the overall water supply experience when the current operation is completed.

Environmental Impacts Are Not Yet Well Known

As the danger to public water supplies has diminished during the past two weeks, we must not forget that the potential impact of the spill on waterfowl, fish, mussels and small game may not be known for some time to come. EPA defers to the U.S. Interior Department, the Pennsylvania Fish and Game Commissions and similar agencies in other states for more authoritative information on this longer term result of the spill. It is our

understanding that the Pennsylvania Commissions and the Pennsylvania Department of Environmental Resources are planning studies to monitor these effects, some of which will persist as diesel fuel which cannot be recovered is gradually released into the river environment. While we know that fish kills and waterfowl deaths have already been reported, as time passes it may be increasingly difficult to isolate the effects of the recent spill from the effects of other toxic materials in the environment. EPA's biology laboratory in Wheeling will assist the other natural resource agencies in conducting these studies.

Outstanding Cooperation throughout the Emergency

Although we must now turn our attention to preventing emergencies such as this oil spill, we recognize that emergencies take place and industry and government must be prepared to respond promptly and cooperatively. Attachment 2 lists most of the agencies which contributed to the emergency response, under the coordination of the Regional Response Team. The Regional Response Team, under the National Contingency Plan, is activated to assist the Federal On-Scene Coordinator (EPA's Jerry Saseen in this operation) in managing the emergency operation. The many agencies listed on the chart were members of the Regional Response Team, which convened daily by conference telephone call to discuss all aspects of the response and to share information. The Regional Response Team convened for the Floreffe emergency was chaired by EPA's Tom Voltaggio.

Contractor assistance by EPA's Technical Assistance Team and Ashland Oil's pool of cleanup contractors should also be commended for a difficult job well done.

Each agency has its own statutory authorities, technical and financial capabilities, experience and political leadership, and yet these were drawn together quickly and professionally by the Regional Response Team during the first days of the response. A very important task which the Regional Response Team will soon undertake is to critique the entire operation, both technically and intergovernmentally. We must learn more about what went right and what went wrong, and I can report that once the operation was underway, much more went right than wrong. Under very extreme weather and river conditions, it is remarkable how well this large number of Federal, State and local agencies were able to work together.

Several Ongoing Investigations Will Continue

The bulk of EPA's, other agencies' and Ashland Oil's efforts of the past three weeks has been devoted to recovering oil, monitoring the movement of the diesel fuel in the Mon and Ohio Rivers, assisting water suppliers and protecting threatened waterfowl. We must now turn greater attention to learning what caused the collapse of the tank and how to prevent such releases to the environment in the future.

I mentioned a few minutes ago that EPA will soon conclude an investigation into the compliance of Ashland Oils' Floreffe

facility with the SPCC regulations under the Clean Water Act. This is one of many investigations underway by EPA, the Commonwealth of Pennsylvania, Ashland Oil and other interested parties. I and members of my staff are working closely with the U.S. Attorney in Pittsburgh concerning EPA's continuing investigations. I want to assure you that EPA will determine the facility's compliance with all Federal environmental statutes and take whatever enforcement action is appropriate. Ashland Oil has agreed to delay resumption of normal operations pending further discussion with EPA on the appropriate manner of restarting.

When Secretary Davis of the Pennsylvania Department of Environmental Resources and I met earlier this month, we made a commitment to share information and assist each other's complementary investigations. Further, while EPA's regulations are somewhat limited, EPA is considering joining the work of the Commonwealth, the Occupational Safety and Health Administration and the National Bureau of Standards in studying the failure of the collapsed tank and structural integrity of other tanks at the Floreffe facility. Finally, EPA will work closely with the Ohio River Valley Water Sanitation Commission (ORSANCO) and its affiliated agencies in its long-term monitoring of the Mon and Ohio Rivers in the aftermath of the spill.

The massive release on January 2 of almost one million gallons of diesel fuel into the Mon River pointed out once

again how suddenly our public health and natural environment can be damaged. This incident points to the need for greater care by owners of storage tanks.

After failing to contain and counter the diesel fuel release at the site, Ashland Oil has done a good job conducting the cleanup and assisting local communities since January 2. It must also be pointed out that the Environmental Protection Agency, working with the Deparment of Justice and other Federal and State agencies, will complete a thorough investigation into the statutory compliance of the Floreffe facility. If enforcement action is appropriate, it will be taken. While EPA does not regulate tank design and construction, we agree with the need for an investigation of the cause of the collapse and will assist in this study.

I also want to take this opportunity to say how proud I have been of the hard and skillful work performed by the professional response personnel of EPA, our contractors, and the many other agencies, water suppliers and contractors who have been on scene in Floreffe and on the frigid waters of the Mon and Ohio Rivers. A public health and environmental emergency has been managed very well thanks to these people.

ATTACHMENT 1

Summary of Affected Water Treatment Plants

MILE POINT	PEOPLE SERVED	WATER COMPANY	RIVER INTAKE CLOSED	RIVER INTAKE OPEN	DAYS CLOSED
-24.5	530,000	West Penn, PA	1/3/88	1/06/88	4
4.5	160,000	West View, PA	1/3/88	1/10/88	8
8.6	9,000	Robinson, PA	1/3/88	1/10/88	8
36	9,000	Midland, PA	1/4/88	1/07/88	4
40	17,000	E. Liverpool, OH	1/4/88	1/07/88	4
42	3,800	Chester, OH	Intake closing not needed		
59	1,000	Toronto, OH	1/6/88	1/09/88	4
65	40,000	Steubenville, OH	1/6/88	1/10/88	5
86	68,000	Wheeling, WV	1/8/88	1/10/88	3
94	8,100	Bellaire, OH	Intake closing not needed		
137	2,000	Siscersville, WV	1/14/88	?	?

ATTACHMENT 2

Agencies Participating in Regional Response Team

AGENCY	PRIMARY RESPONSIBILITIES
[Federal]	
Environmental Protection Agency	Overall coordination and direction Water and biology monitoring Advice to water suppliers
U.S. Coast Guard	Initial Federal agency on-scene Response technical assistance CWA sec. 311 fund administration
Federal Emergency Managment Agency	Response technical assistance Coordination with PEMA and ANG
National Oceanic & Atmospheric Admin	Modeling of oil transport Sampling technical assitance
Army Corps of Engineers	Reconaissance and sampling Pumping operations
U.S. Dept of the Interior	Wildlife monitoring
Ohio River Valley Water Sanitation Commission (ORSANCO)	Modeling of oil transport Water monitoring
[State]	
PA Dept of Environmental Resources	Overall coordination and direction Advice to water suppliers
PA Emergency Managment Agency	Advice to water suppliers Coordination with National Guard
PA Army National Guard	Provision of water buffaloes
PA Game Commission	Monitoring waterfowl impact Saving damaged waterfowl
PA Fish Commission	Monitoring fish kills Water Monitoring
PA State Police	Advice to fire departments
WV Dept of Health	Advice to water suppliers
WV Dept of Natural Resources	Environmental monitoring
OH Environmental Protection Agency	Advice to water suppliers Environmental monitoring
KY Division of Water	Advice to water suppliers Environmental monitoring
[Local]	
Allegheny County Health Department	Air quality monitoring Advice to water suppliers
Allegheny County Emergency Mgt Agency	Evacuation Advice to local government Advice to water suppliers
Numerous water suppliers	Mgt of conservation, treatment and distribution
Numerous fire departments	Evacuation Advice to local government

U.S. Department of Transportation
United States Coast Guard

Commandant
United States Coast Guard

Washington, DC 20593
Staff Symbol:
Phone:

STATEMENT OF REAR ADMIRAL J. WILLIAM KIME

U. S. COAST GUARD

BEFORE THE

SUBCOMMITTEE ON ENVIRONMENTAL PROTECTION

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

U. S. SENATE

FEBRUARY 4, 1988

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE, I AM REAR ADMIRAL J. WILLIAM KIME, CHIEF OF THE OFFICE OF MARINE SAFETY, SECURITY AND ENVIRONMENTAL PROTECTION, UNITED STATES COAST GUARD HEADQUARTERS. I AM PLEASED TO APPEAR BEFORE YOU TODAY TO DISCUSS THE COAST GUARD'S ROLE IN RESPONSE TO THE MAJOR OIL SPILL WHICH RESULTED FROM THE JANUARY 2, 1988 ASHLAND OIL COMPANY ACCIDENT IN FLOREFFE, PENNSYLVANIA.

THE COAST GUARD RESPONDED TO THIS CASE CONSISTENT WITH THE VARIOUS PROVISIONS OF THE CLEAN WATER ACT, THE NATIONAL CONTINGENCY PLAN AND A MEMORANDUM OF UNDERSTANDING BETWEEN THE COAST GUARD AND THE ENVIRONMENTAL PROTECTION AGENCY. ACCORDING TO THE NATIONAL CONTINGENCY PLAN, A FEDERAL PREDESIGNATED ON-SCENE COORDINATOR IS ASSIGNED TO INSURE THAT APPROPRIATE ACTION IS TAKEN WHENEVER THERE IS A DISCHARGE OF OIL INTO THE NAVIGABLE WATERS OF THE UNITED STATES OR A RELEASE OF HAZARDOUS SUBSTANCES INTO THE ENVIRONMENT. THE LOCAL COAST GUARD CAPTAIN OF THE PORT SERVES AS THE PREDESIGNATED ON-SCENE COORDINATOR FOR POLLUTION INCIDENTS OCCURRING IN THE COASTAL ZONE. THE COASTAL ZONE IS COMPRISED OF THE WATERS IN THE EXCLUSIVE ECONOMIC ZONE, EXTENDING APPROXIMATELY 200 MILES OFFSHORE, THE GREAT LAKES AND SPECIFIED PORTS AND HARBORS ON THE INLAND RIVERS. THE BOUNDARY BETWEEN THE COASTAL AND INLAND ZONES IS DEFINED IN EACH REGIONAL CONTINGENCY PLAN. THE EPA PROVIDES PREDESIGNATED ON-SCENE COORDINATORS FOR THE INLAND ZONE. IN ACCORDANCE WITH A USCG/EPA MEMORANDUM OF UNDERSTANDING, THE LOCAL COAST GUARD CAPTAIN OF THE PORT IS THE PREDESIGNATED ON-SCENE COORDINATOR FOR ALL DISCHARGES OF OIL AND HAZARDOUS SUBSTANCES WHICH RESULT FROM A VESSEL CASUALTY OR VESSEL TRANSFER ACTIVITY WITHIN SPECIFIED PORTS AND HARBORS OF THE INLAND RIVER SYSTEM. THE COAST GUARD DOES NOT NORMALLY SERVE AS THE PREDESIGNATED ON-SCENE COORDINATOR FOR DISCHARGES WHICH OCCUR AT INDUSTRIAL FACILITIES, BULK STORAGE FACILITIES, HAZARDOUS WASTE SITES, OR NON-MARINE TRANSPORTATION CASUALTIES IN THE INLAND ZONE. HOWEVER, OPERATIONS AND RESOURCES PERMITTING, THE COAST GUARD WILL, AT THE REQUEST OF EPA, PROVIDE ASSISTANCE AND ACT AS THE FIRST FEDERAL OFFICIAL ON-SCENE FOR THOSE MAJOR INCIDENTS WHICH OCCUR IN THE INLAND ZONE THAT REQUIRE IMMEDIATE

FEDERAL RESPONSE PRESENCE.

THE COAST GUARD MARINE SAFETY OFFICE (MSO) IN PITTSBURGH RECEIVED A REPORT OF AN OIL SPILL AT ASHLAND OIL COMPANY, MILE 21 ON THE MONONGAHELA RIVER, AT 7:00 P.M., JANUARY 2, 1988. FURTHER TELEPHONE INVESTIGATION REVEALED THAT AN ASHLAND OIL COMPANY OIL STORAGE TANK COLLAPSED AND RELEASED APPROXIMATELY FOUR MILLION GALLONS OF DIESEL OIL. THE INSTANTANEOUS RELEASE CAUSED APPROXIMATELY ONE MILLION GALLONS OF THE DIESEL OIL TO FLOW OVER THE CONTAINMENT DIKE, SPILLING INTO DRAINAGE DITCHES FROM WHICH THE DIESEL OIL CONTINUED INTO THE MONONGAHELA RIVER.

COAST GUARD MARINE SAFETY OFFICE PITTSBURGH IMMEDIATELY NOTIFIED ALL APPROPRIATE FEDERAL, STATE AND LOCAL INTERESTS. THE EPA REGIONAL OFFICE IN PHILADELPHIA WAS INFORMED THAT THE SOURCE OF THE SPILL WAS AN OIL STORAGE TANK AND THAT EPA WAS THE PREDESIGNATED ON-SCENE COORDINATOR AS PER THE COAST GUARD/EPA MEMORANDUM OF UNDERSTANDING. EPA REGION III REQUESTED THAT THE COAST GUARD RESPOND AS FIRST FEDERAL OFFICIAL ON-SCENE AND INDICATED THAT EPA WOULD ASSUME THE DUTIES OF ON-SCENE COORDINATOR UPON ARRIVAL. MSO PITTSBURGH RESPONDED TO THE SPILL AND DETERMINED THAT IMMEDIATE ACTION WAS NECESSARY. MSO PITTSBURGH REQUESTED ASSISTANCE FROM THE COAST GUARD'S NATIONAL STRIKE FORCE AND CLOSED THE MONONGAHELA RIVER BETWEEN MILES ZERO AND 24 TO MARINE TRAFFIC. ASHLAND OIL COMPANY ASSUMED FINANCIAL RESPONSIBILITY FOR THE CLEAN-UP AND PROMPTLY CONTRACTED TWO CLEAN-UP COMPANIES. AN INITIAL PLAN FOR OIL RECOVERY FROM THE RIVER WAS COMPLETED DURING A MEETING OF REPRESENTATIVES FROM THE COAST GUARD, ASHLAND OIL COMPANY AND THE TWO CLEAN-UP COMPANIES. THE PLAN INCLUDED THE DEPLOYMENT OF 10,000 FEET OF CONTAINMENT BOOM AT TWO PRIMARY LOCATIONS ON THE MONONGAHELA RIVER.

EPA REGION III ASSUMED ON-SCENE COORDINATOR AT 11:00 A.M., JANUARY 3, AND REQUESTED COAST GUARD ASSISTANCE IN MONITORING OIL RECOVERY IN THE RIVER. COAST GUARD NATIONAL STRIKE FORCE PERSONNEL ARRIVED AT 1:15 P.M., JANUARY 3, AND IMMEDIATELY

CONDUCTED AN OVERFLIGHT OF THE SPILL AREA. NATIONAL STRIKE FORCE PERSONNEL DISCOVERED THAT THE SPEED OF THE CURRENT IN THE RIVER HAD REDUCED THE EFFECTIVENESS OF THE CONTAINMENT BOOM. THEY RECOMMENDED THAT THE BOOM BE DEPLOYED SUCH THAT OIL IN THE RIVER WOULD BE DEFLECTED TOWARD NATURAL CONTAINMENT AREAS IN THE RIVER TO FACILITATE REMOVAL. THE DEFLECTION BOOMS WERE SUCCESSFUL PRIMARILY BECAUSE THE BOOM ANGLE WAS CONSISTENTLY MAINTAINED BY SECURING THE BOOM TO BUOYS SET IN THE RIVER BY THE COAST GUARD CUTTER OSAGE. THE OSAGE IS A 65 FOOT RIVER BUOY TENDER HOMEPORTED IN SEWICKLEY, PENNSYLVANIA AND WAS REQUESTED TO ASSIST BY MSO PITTSBURGH.

THE DEFLECTION BOOMS WERE UNABLE TO REACH THE OIL THAT FLOATED DOWN THE MIDDLE OF THE MONONGAHELA AND OHIO RIVERS, AND THE DEFLECTION BOOMS WERE INEFFECTIVE IN CONTAINING THE OIL THAT FLOWED DOWN RIVER BELOW THE WATER'S SURFACE. THUS, A LARGE PORTION OF THE OIL PROCEEDED DOWN RIVER MAKING THE PRIMARY CONCERN THE PROTECTION OF PUBLIC WATER SUPPLIES. COAST GUARD NATIONAL STRIKE FORCE PERSONNEL ASSISTED THE CITY OF WHEELING, WEST VIRGINIA BY PUMPING FRESH WATER INTO THE WHEELING WATER TREATMENT PLANTS. WATER WAS PUMPED FROM AN UNEFFECTED FRESH WATER CREEK INTO TANK BARGES AND THEN THE BARGES WERE OFFLOADED INTO THE WATER TREATMENT PLANTS. AIR DEPLOYABLE ANTI-POLLUTION TRANSFER SYSTEM PUMPS PROVIDED BY THE NATIONAL STRIKE FORCE WERE USED FOR THIS OPERATION AND WERE FUNDED BY ASHLAND OIL.

AS THE DIESEL OIL MOVED DOWN RIVER, MUCH OF THE OIL BECAME MIXED IN THE WATER COLUMN AFTER GOING OVER THE DAMS IN THE RIVER AND REMAINED MIXED VERTICALLY IN THE WATER COLUMN. ALSO, AS THE DIESEL OIL NEARED ITS FREEZING POINT, IT BECAME WAXY AND LOST ITS BUOYANCY, THUS, THE OIL FLOWED WITH THE CURRENT AT THE DEPTH AT WHICH IT MIXED. ADDITIONALLY, ICE FORMED ON THE RIVER AND TRAPPED DIESEL OIL IN AND BELOW THE ICE.

THE COAST GUARD ASSISTED THE EPA IN ANOTHER IMPORTANT AREA, PUBLIC RELATIONS. A MEMBER OF THE COAST GUARD PUBLIC INFORMATION ASSIST TEAM, TRAINED IN BOTH MEDIA RELATIONS AND POLLUTION

RESPONSE, ARRIVED IN PITTSBURGH ON JANUARY 3 AND RESPONDED TO A FLOOD OF MEDIA AND PUBLIC REQUESTS FOR INFORMATION SPECIFIC TO THE INCIDENT.

MOST OF THE COAST GUARD FORCES WERE DEMOBILIZED BETWEEN 12 AND 14 JANUARY. MARINE SAFETY OFFICE PITTSBURGH CONTINUED TO PROVIDE ASSISTANCE AS REQUESTED BY EPA AND FOUR NATIONAL STRIKE FORCE MEMBERS REMAINED ON-SCENE TO SUPERVISE OIL RECOVERY OPERATIONS IN THE MONONGAHELA AND OHIO RIVERS. ALL COAST GUARD PERSONNEL WERE DEMOBILIZED ON JANUARY 22. DURING THE INCIDENT, COAST GUARD PERSONNEL FROM THE FOLLOWING UNITS WERE MOBILIZED:

MSO PITTSBURGH	17
NATIONAL STRIKE FORCE	23
PUBLIC INFORMATION ASSIST TEAM	2
AREA/DISTRST STAFFS	6
CGC OSAGE	19
AIR STATION DETROIT	3 (PROVIDED ONE HELICOPTER FOR ONE DAY)
AIR STATION TRAVERSE CITY	10 (PROVIDED ONE HELICOPTER FOR SEVEN DAYS)
CG RESERVE UNIT PITTSBURGH	4
TOTAL- 9 UNITS	84

AS OF THE JANUARY 23 UPDATE, APPROXIMATELY 3,000,000 GALLONS OF DIESEL OIL WERE RECOVERED FROM THE LAND AND 150,000 GALLONS OF DIESEL OIL WERE RECOVERED FROM THE WATER. DURING THE INCIDENT THE ON-SCENE COORDINATOR HAD ACCESS TO THE COAST GUARD ADMINISTERED POLLUTION FUND, ESTABLISHED IN SECTION 311(K) OF THE CLEAN WATER ACT FOR REMOVAL OF SPILLED OIL, IN CASE THE RESPONSIBLE PARTY FAILED TO TAKE APPROPRIATE CLEAN-UP ACTIONS. SINCE THE OSC DETERMINED THAT ASHLAND OIL COMPANY HAS ACTED RESPONSIBLY DURING THIS INCIDENT, THERE HAS BEEN NO NEED TO

ACCESS THE FUND.

THIS COMPLETES MY OPENING REMARKS. I WOULD BE HAPPY TO ANSWER ANY QUESTIONS YOU MAY HAVE.

Testimony of
Mark M. McClellan
Deputy Secretary for Environmental Protection

Pennsylvania Department of Environmental Resources

Before the

U.S. Senate Environment and Public Works Committee
Subcommittee on Environmental Protection

February 4, 1988

Mr. Chairman, members of the Committee, my name is Mark M. McClellan, Deputy Secretary of the Pennsylvania Department of Environmental Resources (DER). I would also like to introduce Terry Fabian, who was my Regional Director in Pittsburgh at the time of the spill, and Fred Osman, DER emergency response coordinator. I appreciate the opportunity to appear before you today, and welcome the Committee's interest in examining federal policy in the light of our recent experience.

Just over one month ago, on January 2, an estimated 3.7 gallons of petroleum products from a tank at the Ashland Oil Company facility in Allegheny County spilled into the Monongahela and Ohio Rivers, seriously threatening public water supplies and affecting the natural and economic resources of Pennsylvania, West Virginia and Ohio. The full environmental impact of this event may not be known for some time.

Governor Robert P. Casey has named DER's Chief Counsel to lead a Tank Collapse Task Force that will be thoroughly reviewing the spill. The Task Force is investigating the physical causes of the accident and issues of responsibility (for example, how Ashland's policies and practices in this case may compare with industry standards). However, a structural study, commissioned by the state, showed some evidence that structural flaws may exist in other tanks at the facility. Ashland, in cooperation with the state has agreed to pump two tanks at the site. Had Ashland not agreed, the state was prepared to order them under existing state law to do so.

The Task Force will also be making specific recommendations for improving state programs to prevent such an incident in the future. A separate review by the Pennsylvania Emergency Management Agency is evaluating the efficacy and speed of the disaster management responses.

My testimony will outline DER's response to the spill and suggest areas in which state and federal laws, regulations and policies must be improved.

Spill Response

Within approximately 25 minutes of being notified that a spill had taken place on January 2, a DER water quality specialist was on scene to assess the problem.

We received notification of the spill from the Pleasant Hill Hazardous Materials Response Team which was responding to the incident. Ashland Oil itself never formally notified the Department of the spill, although the company did notify a number of other agencies including the National Response Center.

Our first inspection of the site traced the spilled diesel fuel from the diked area of the Ashland property to the point it entered the river through property owned by Duquesne Light Company. Duquesene Light was able to quickly implement its own spill preparedness plan and alerted downstream water users of the diesel fuel spilling into the river.

From about 10:30pm Saturday evening through early Sunday morning, direct access to the Ashland property or adjacent areas was not permitted by local fire authorities. They were concerned that gasoline reportedly spilled during the incident would ignite. In fact, the first non-fire fighting authorities allowed on the site after our initial inspection were Lt. Governor Mark Singel and myself who flew from Harrisburg before dawn to directly coordinate the state's response to the spill.

DER staff worked closely with local fire authorities to first stabilize the diesel fuel on the site and with the Allegheny County Health Department to provide additional warnings to drinking water suppliers downstream as more information about the size of the spill became available. Darkness hampered efforts to respond to the spill during its early hours.

Throughout the night, DER staff worked with the Coast Guard, Pennsylvania Fish Commission and Ashland Oil to organize containment and clean-up operations. From the very beginning, however, it was clear to our staff and to the contractor brought in by Ashland Oil that containing a spill of this size was beyond the immediate resources of the companies and local and state governments.

We found to our dismay that procedures within which the federal officials operated hampered their ability to take action without extensive and delaying consultation with each other and with the responsible party. Specifically, because federal officials did not, as we requested, declare this a "federal spill", they had to receive authorization from Ashland Oil for every response action. Inability to reach the appropriate Ashland officials at the very early stages delayed response action that may have minimized the spill's impact.

Lt. Governor Mark Singel and I continually pressed Ashland Oil, the Coast Guard and EPA to devote federal resources and the proper equipment to containing the spill. To demonstrate the size of the problem, we took Coast Guard representatives in a State Police

helicopter to survey the spill. But I actually had to commit the state to underwriting the cost in order for EPA to allow the Coast Guard to bring in the specialized spill containment equipment and personnel that was clearly needed.

We believe that the deciding factor in the federal government's decision not to declare this a federal spill was to avoid the expenditure of federal funds, not the potential to mitigate environmental damage. This is just unacceptable when action within a very short period of time may make the difference between a threat to public health and an adequate response action.

Threat to Water Supplies

Samples of river water taken and analyzed by DER first identified the diesel fuel/water emulsion problem that was to threaten the water supplies of over 800,000 people in Pennsylvania. DER staff, working with the Pennsylvania Emergency Management Agency, the individual water suppliers and affected counties, took the lead role in dealing with the drinking water problems that resulted from the spill.

DER staff from several parts of the agency helped to respond to the drinking water emergency. We constantly monitored the location of the diesel fuel/water emulsion in the river in relation to water intakes, took raw water samples at river intakes and at the ten systems with well fields close to the river for any signs of contamination. As many as 200 water samples a day were processed by our laboratory that worked around the clock. In addition, the DER staff who are experienced in handling water shortage problems in droughts were brought in to help in dealing with the water shortages caused by the spill.

I am proud to say that the teamwork of DER, the counties, the water suppliers and PEMA prevented any actual contamination of drinking water collection and treatment systems using either the Ohio or Monongahela Rivers as a source of water. We are, of course, still monitoring these systems as well as water supply wells near the rivers to make sure they remain safe.

Water suppliers relied on a combination of water conservation, reserve wells, interconnections with other systems, full use of limited storage capacity and innovative water treatment to get through the crisis. The incident clearly demonstrates the value of establishing interconnections between water systems that can be used in times of emergency.

The individual water users -- homeowners and businesses -deserve most of the credit for getting the water systems through water shortages. Without the cooperation we received with the mandatory water conservation order issued by our Emergency Management Council, the number of water customers without service would have been much higher.

DER drinking water system specialists worked very closely with water suppliers to develop an experimental water treatment process-literally overnight-- to safely treat diesel fuel

contaminated water. This process is being used by other water suppliers in other states that now have these same problems. This extra effort by our staff made it possible for water suppliers to open their river intakes days before it would have been otherwise possible.

Responding to the spill in this way required considerable mobilization of state resources. DER alone had over 50 people working full-time on the spill at the height of the incident with operations going around the clock. This is to say nothing of the other state agencies, county agencies, hundreds of volunteers, private businesses providing bottled water and tankers, and the area media.

Spill Site Cleanup and Environmental Damage

DER's investigation of groundwater and soil contamination at the site of the spill will be continuing for some time. Pits and monitoring wells have been installed on the site to obtain detailed groundwater and geologic information. Soil sampling is also being conducted onsite. The site investigation is being directed jointly by DER and EPA and financed by Ashland Oil.

In addition, we will have to continue water quality monitoring and river surveillance to identify potential impacts on downstream water users and stream bank areas that are saturated with oil and must be cleaned up by Ashland. We also expect to find oil accumulation in coves and eddies in the river that must be identified and cleaned up. Tons of contaminated soil will have to be removed along the river bank.

We will continue sampling water supplies, both surface intake and riverside groundwater sources, to ensure that there is safe water for public use. Our initial results from the pits and monitoring wells indicate that there has been groundwater contamination. Further investigation must be done to determine the precise extent of the contamination and then how it can be cleaned up.

We know some of the impacts this spill has had on the environment: soil and groundwater contamination at the site itself, temporary water shortages, the loss of more than 11,000 fish and 2,000 waterfowl. In addition, the economic impacts -- businesses which had to close, loss of revenues from river commerce -- are significant. Less tangible but important none the less is the adverse change in public perception about the improvement in water quality in the Monongahela and Ohio Rivers.

The longer-term environmental impact may not be known for some time. We support efforts to have the Ohio River Valley Water Sanitation Commission (ORSANCO) coordinate the studies needed to determine what impact the spill has had on river ecology.

ORSANCO is in the middle of a two-year comprehensive study of the Monongahela River. Last summer they completed a baseline study of river water quality. The second phase of that study will be conducted this summer. The analysis of the information they collect

should give us clues to the longer-term impact of the spill. We expect to work closely with ORSANCO, the Pennsylvania Fish and Game Commissions and EPA to complete the assessment of environmental damage over the next few months.

Current DER Requirements

Under the state Clean Streams Law, facilities like the bulk storage area in Jefferson Borough are required to have Preparedness, Prevention and Contingency Plans (PPC Plans).

According to our best estimates, there are approximately 6,500 bulk storage tanks of 50,000 gallons or more in size in Pennsylvania that must comply with the PPC Plan requirement. The Department is notified of approximately 10 to 12 leaks from bulk storage tanks each year.

Chapter 101 of our regulations contains the PPC Plan requirement and a manual the Department distributes contains detailed guidance on what the plan must contain.

The regulations and the PPC Plan require companies to do several things--

1. take precautions, such as diking, to prevent oil and other products from getting into rivers and streams;

2. have the ability either directly or through a contractor to clean up any spills that could result from leaking tanks; and

3. have a plan for notifying local emergency response officials and DER of a spill, if one occurs.

Though these plans are required, the Department does not have the resources for routine review of plans and inspection of tanks.

In the case of Ashland Oil, the PPC Plan for the site was inadequate. The Plan was originally prepared in 1970 and was outdated. We have already told Ashland Oil the Plan does not meet current standards and must be updated. We are conducting a complete review of all the DER requirements Ashland Oil may have violated in allowing this spill to take place, including the PPC Plan and notification requirements. We will be recommending appropriate penalties for these violations after our investigation is complete.

Recommendations

At this point, it is difficult to give you a comprehensive set of recommendations on what can be done to prevent a spill like this in the future. The investigation of the Governor's Tank Collapse Task Force should result in a number of specific recommendations we will gladly share with the Committee.

However, we have begun to look at several broad areas where there is interaction between state and federal governments.

1. Regulating Storage Tanks.

Department staff are in the process of finalizing state legislation to regulate underground storage tanks in line with new federal requirements in this area. At present, the State Fire Marshall administers some aspects of regulating storage tanks, both underground and aboveground, except in Allegheny County (Pittsburgh area) and the City of Philadelphia which have their own programs. This program is in the process of being transferred to DER in order to significantly improve the environmental protection elements of the State Fire Marshall's program, in line with the new federal requirements. We are also reviewing our PPC Plan requirements to deal with sudden tank failures based on the results of our Task Force investigations.

We urge Congress to direct EPA to develop national minimum requirements to ensure that new and relocated above-ground storage tanks for petroleum and other hazardous substances are designed and installed so as not to endanger public health and safety. Enforcement should be delegable to states with programs at least as stringent, and federal assistance should be available for program development and implementation.

2. Emergency Response

In any spill response, time is of the essence. In many circumstances, actions taken immediately can change the character of the incident from disaster to a contained clean-up.

In this case, the initial response of federal agencies to this incident was slow and hampered by the fact EPA and the Coast Guard had to work through Ashland, as the responsible party, to get approval for any action they needed to take. Either through administrative action or legislation, the Coast Guard and EPA must be in a position to help state and local governments much more quickly in a spill of this magnitude. Federal agencies must be able to fully utilize the contingency funds available to them and cannot be hamstrung by outdated requirements for responding to a spill. We ask that Congress direct that the National Contingency Plan be revised so as to make federal funds automatically available whenever there is:

o a major discharge whether or not a responsible party is identifiable and cooperative; or

o a spill of any lesser magnitude which presents an immediate threat which could affect two or more states upon the request of the affected Governors or their representatives on the Regional Response Team (RRT); or

o a spill of lesser magnitude that affects one state upon the agreement of the federal on-scene coordinator and the Governor's representative to the RRT that immediate action is necessary to protect public health and the environment.

We should also point out that the Coast Guard equipment assigned to

the port of Pittsburgh, one of the nation's largest inland ports, is totally inadequate compared to the size of the facility and the potential risk. Again, had properly sized equipment been available without having to be flown in, precious hours would have been saved.

We also urge Congress to enact legislation with minimum standards for the cleanup of spills which also provide that the cleanup meet any more stringent standard required under state environmental law.

We are including in our written testimony a National Governors' Association policy statement based on Governor Casey's proposal, approved by the Staff Advisory Committee to the NGA Energy and Environment Committee in January 1988, and scheduled to be considered by the National Governors' Association at their winter meeting later this month.

3. Oil Spill Liability

We support legislation which would establish a federal petroleum spill compensation fund, similar to Superfund, to pay for clean up and response costs and for compensation for natural resource damages The legislation should establish the standard of unlimited liability for the responsible party. As with Superfund, if moneys from the fund are expended, the federal government should recover these funds from the responsible party.

Conclusion. Pennsylvania's participation in responding to this incident has demonstrated that we must improve the prevention, emergency response and cleanup of hazardous substance spills, including petroleum products, by federal and state governments. These accidents speak to the need for further definition of federal-state relationships in preventing and responding to accidental discharges. Questions remain regarding the federal decision making process during the initial stages of response and issues remain regarding liability, since the full economic impacts of this incident have yet to be measured.

This spill brings home the ultimate vulnerability of urban areas to massive disruption from the industrial activities our society demands. It has demonstrated the absolutely critical need for quick action for containment and cleanup. We urge you to take these lessons to heart as you consider improvements to federal prevention and response policy this year.

I would be glad to respond to any questions you might have.

POLICY STATEMENT
Proposed NGA Policy Statement Adopted by the
Energy and Environment SAC, January 22, 1988
Submitted by Pennsylvania

Spills of petroleum products and hazardous substances have occurred and will occur that may impact one or several states. These spills often are of a magnitude beyond the ability of the state or several states to respond, and will require the prompt involvement of the federal government.

Existing federal regulations and programs have been proven inadequate to either prevent or provide for adequate federal response to spills of petroleum produces and hazardous substances. Spills of this magnitude may affect the natural and economic resources of several states, including public and private water supplies, requiring the involvement of the states and federal government to contain and clean up the spill and to prevent endangerment to public health.

Existing mechanisms in the National Contingency Plan have proven insufficient to permit decisive action, particularly in the initial stages of an incident.

THEREFORE the Governors recommend that:

o Congress direct the Environmental Protection Agency to revise the National Contingency Plan so as to make federal (Section 311K of the Clean Water Act) funds automatically available whenever there is either:

- a major discharge, as defined by the National Contingency Plan, where or not a responsible party is identifiable and cooperative, or

- a spill of any lesser magnitude which presents an immediate threat that has the potential to 1) affect two or more states, upon the request of the Governors of those states or their representatives on the Regional Response Team, or 2) affect one state, upon the agreement of the federal On Site Coordinator and the Governor's representative to the Regional Response Team that immediate action is necessary to protect health and the environment.

- Congress enact legislation establishing a comprehensive oil spill liability and compensation system to address problems, resulting from inland, costal and ocean spills of oil and petroleum products. Such legislation should preserve the right of the states to administer their own spill funds.

- The Environmental Protection Agency establish regulations that would require immediate notification of all states affected or potentially affected by a major spill of petroleum products or hazardous substances and invite participation by those states on the response team without regard to EPA regional boundaries.

- Congress enact legislation requiring that cleanup of petroleum spills and other hazardous substances in a state meet any more stringent standard, requirement, criteria or limitation required under that state's environmental laws.

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Statement of

Richard S. Golob

Director, World Information Systems

Before the Subcommittee on Environmental Protection

Committee on Environment and Public Works

U.S. Senate

4 February 1988

83-389 0 - 5

Mr. Chairman and members of the subcommittee, thank you for the opportunity to speak to you this morning about the Ashland tank spill and other tank-related incidents. My name is Richard Golob. I am director of World Information Systems, an environmental research firm in Cambridge, Massachusetts. I also serve as executive editor of the Oil Spill Intelligence Report, a weekly newsletter on oil spills and spill-related issues, and as publisher of the Hazardous Materials Intelligence Report, a weekly newsletter on hazardous waste and hazardous materials management. During the past ten years, I have actively monitored oil pollution incidents and hazardous chemical spills, both in the U.S. and around the world.

Fortunately, given the large amount of oil transported and stored, major oil spills are low-probability events; however, as the Ashland incident illustrates, major spills do take place, and they can have serious environmental and social consequences.

In terms of spill size, the Ashland incident is world-class. During 1984 and 1985 -- the last two years for which we compiled annual spill summaries -- only 7 spills worldwide involved more than one million gallons of oil. In the U.S., the Ashland incident is the largest oil spill since an exploratory well south of Ranger, Texas, blew out on 6 November 1985 and spilled a total of 6.3 million gallons of oil.

In terms of spill impact, the Ashland incident is also world-class. It probably has affected more people over a wider area than any other oil spill in the U.S. It is America's version of the Sandoz chemical spill into the Rhine River in November 1986.

Based on an analysis of our spill data base, we found that the cause of the Ashland tank spill is not unique. During the past ten years, several

other aboveground tanks have suffered structural failures, resulting in massive spills. In most of these incidents, the protective dikes or berms around each tank have not succeeded in containing all of the spilled oil. In some cases, the spilled oil has surged from the ruptured tank as a wave, and a portion of the oil has washed up and over the containment dike. Other times, the force of the surging oil has collapsed the dike or caused it to crack, allowing oil to escape outside the containment area. In the appended information from the Oil Spill Intelligence Report, we have compiled for the subcommittee's review a summary of tank-related incidents since 1978, as well as brief descriptions of several major tank spills.

Since most storage tanks are located near water, spilled oil that breaches a tank's containment system often ends up in a nearby river or harbor. The oil commonly enters the waterway through the drainage system of the tank's facility or an adjacent facility. Once the oil reaches the water, it becomes difficult to recover. Although Ashland recovered only about 15 percent of the oil that entered the Monongahela River, that amount is fairly typical for a river cleanup.

While tank spills represent a serious environmental threat, tank fires and explosions also deserve attention, as they can cause not only casualties and property loss, but also environmental damage. During firefighting efforts to bring a tank fire under control, the runoff -- a mixture of oil, chemical foam, and water -- will sometimes overflow or breach the containment dike and eventually empty through the drainage system into a nearby waterway. The major environmental problems from the Sandoz chemical fire and spill began when the facility's dike could no longer contain the large volume of water used to extinguish the blaze and the chemical-contaminated runoff drained into

the Rhine River.

Any investigation into aboveground storage tanks should not be limited to petroleum tanks, as chemical tanks pose a more toxic threat to the environment. Although chemical tank spills seem to occur less frequently than petroleum tank spills, our data base revealed several chemical incidents involving either a tank-related accident or a containment system failure that resulted in serious pollution.

While focusing attention on the storage tank as a pollution source, the Ashland incident has also helped to identify a gap in the pollution incident data base. Although our data base provides some insights into the frequency, magnitude, and cause of tank spills, the data available are not sufficient to determine the specific factors -- whether tank age, volume, or material -- responsible for structural failure or other problems. As a first step in investigating the tank problem, I would recommend the establishment of a data base on past tank incidents, analyzing them in detail and focusing on variables useful in a risk analysis. I would also recommend a data base on the numbers, types, and contents of aboveground tanks in the U.S. Without comprehensive data, efforts to understand and solve the tank problem may be ineffective.

To reduce the probability of another massive tank spill somewhere else, attention must be focused on all three of the following areas: prevention, containment, and response. Prevention will require construction standards for new tanks, as well as inspection and permitting requirements for existing tanks, especially those above a certain volume capacity, older than a specified age, within a certain distance from a waterway, or reassembled from another site.

As the Ashland incident and other tank spills illustrate, containment has been a weak link in minimizing environmental damages. Here too, construction standards for new dikes or berms, as well as retrofitting requirements for existing ones, would help reduce the possibility that spilled oil will flow over or breach the dike or berm. In addition, attention must be focused on drainage systems, as they have often served as a conduit for the spilled oil to the waterway.

And if a tank ruptures and the containment system fails, then the response mechanism becomes even more critical in reducing the amount of environmental damage. A Spill Prevention, Control, and Countermeasure (SPCC) Plan designed especially for the facility, reviewed regularly by facility personnel, and implemented periodically with mock spill drills would help minimize the potential impacts of the spill through the rapid deployment of both containment and recovery equipment near the spill site.

While the federal government has no regulations currently that specifically address the construction and inspection of aboveground petroleum tanks, some states -- notably Florida, New York, Rhode Island, and South Dakota -- have enacted legislation to regulate the tanks within their jurisdiction. I doubt that Ashland's practices at the Floreffe terminal deviate from the oil industry's norm; therefore, unless steps are taken to improve the prevention, containment, and response measures at similar facilities around the country, other major tank accidents can and will take place.

Thank you, once again, for this opportunity to speak this morning.

Selected Descriptions of Tank-Related Incidents

o On 14 December 1978, a storage tank at a Commonwealth Oil Refining Co. facility in Benuelan, Puerto Rico, ruptured and spilled about 10.5 million gallons of No. 6 fuel oil; about 525,000 gallons overflowed the dike, entered a storm drainage system, and eventually flowed into a drainage canal that flows into Tallaboa Bay. At the time of the rupture, the dike's uppermost section had been undergoing repairs.

o On 10 and 11 January 1982, about 2 million gallons of diesel fuel spilled from a ruptured tank at the Seaboard Coastline Railroad Co. tank farm in Wilmington, North Carolina. While most of the fuel was contained by a dike made of cement and earth, some leaked through cracks in the 30-year-old dike or seeped into the ground. The spill may have occurred because the metal skirt around the bottom of the tank contracted more rapidly in the freezing temperature than the tank itself, puncturing the tank and creating a 2-meter-long crack.

o On 5 July 1983, the foundation collapsed beneath a storage tank at the Belcher Oil Co. tank farm in Bayonne, New Jersey, causing the tank to tilt and its valves and lines to rupture and spill 420,000 gallons of No. 6 fuel oil. Dirt dikes around the storage tank completely contained the spill.

o On 13 April 1984, a saboteur set off explosions at two storage tanks in a Texaco Canada bulk storage station in Sudbury, Ontario, causing about 650,000 gallons of gasoline and furnace fuel to spill from the ruptured tanks. The spilled product surged over the surrounding dike wall into the outside area. Oil also began filling the containment area and rapidly overflowed the dike.

o On 18 August 1984, a lightning bolt struck a storage tank at the Triangle

Oil Corp. tank farm in Jacksonville, Florida, setting off a fire that eventually melted the tank itself. The heat from the burning tank, which contained between 2.5 million and 2.9 million gallons of gasoline, was so intense that the primary brick containment barrier around the tank decomposed. The runoff of water, foam, and gasoline from the firefighting effort flowed into a large drainage ditch at an adjacent plant, and eventually into Jacksonville harbor.

o On 10 February 1985, about 390,000 gallons of No. 2 fuel oil began spilling from a ruptured valve on a storage tank at the Long Island Lighting Co. power station in Island Park, New York. The oil flowed into the diked area around the tank, and then the seal between the steel dike and its concrete base breached, allowing the oil to spill out onto the facility property. A significant amount of oil drained into a nearby creek.

o On 22 June 1985, a storage tank at the Trumbull Asphalt facility in Morehead City, North Carolina, ruptured, allowing more than 800,000 gallons of asphalt to spill onto the facility property; about 20,000 gallons of the asphalt eventually flowed through a 30-inch storm drain into the nearby Newport River. About a year before the rupture, an access door 3 feet wide and 4 feet high had been cut into the steel tank so that minor repairs could be made inside the tank. Once the repairs were completed, the steel plate was welded back into place. The rupture took place along the top weld on the door and then continued down the right side of the door to within a few inches of the base. The facility did not have any containment dikes, and the asphalt spread quickly throughout the facility property.

o On 27 April 1986, a storage tank at the Texaco refinery about 10 miles south of Colon, Panama, ruptured and spilled its entire contents of 10 million

gallons of light crude oil. The force of the gushing oil caused a containment dike to collapse, allowing about 5.9 million gallons of oil to flow into the area around the refinery. At least 2.3 million gallons of oil eventually drained into Cativa Bay, which opens into the Caribbean Sea. The spill caused extensive damage to 6 square miles of mangrove forests and 3 square miles of coral reefs along the Caribbean coastline. The affected region included a 32-acre marine biological reserve where the Smithsonian Tropical Research Institute has been conducting research since 1965. The spill totally disrupted the Smithsonian's environmental studies there.

MAJOR TANK SPILLS AND OTHER TANK-RELATED INCIDENTS -- 1976 TO 1988

Oil Spill Intelligence Report
P.O. Box 199
Cambridge, MA 02238
Tel: 617-492-3310

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
1978					
** 31 Jan 78	onshore bulk cargo transfer	40°41'N, 74°08'W New Jersey	3,000,000	No. 4 fuel	tank rupture
** 8 Feb 78	tank farm Union Oil Co. of California	42°24'N, 71°01'W Revere, Massachusetts	1,500,000	gasoline	tank fracture
21 Feb 78	storage facility Texaco, Inc.	(34°00'N, 118°15'W) (Los Angeles, California)	3,360,000	gasoline	explosion
27 Apr 78	tank farm Gulf of Suez Petroleum Co.	28°08'N, 33°16'E Ras Shukheir, Egypt	2,520,000	crude	explosion & fire
22 May 78	storage tanks Kuwaiti Oil Co.	Al Managish, Kuwait	(up to 2,100,000)	crude	fire
** 12 Jun 78	storage tanks Tohoku Oil Co.	(31°50'N, 130°17'E) (Sendai, Japan)	15,000,000	unknown	tank rupture; earthquake
11 Dec 78	fuel storage depot BP, Shell, TOTAL	17°43'S, 31°05'E Salisbury, Rhodesia	20,000,000	gasoline, paraffin, & diesel fuel	explosion & fire; sabotage
** 14 Dec 76	storage tank Commonwealth Oil Refining Co.	(18°00'N, 66°35'W) Penuelan, Puerto Rico	10,500,000	No. 6 fuel	tank rupture
24 Dec 78	tank Clarco Pipeline Co.	30°11'N, 91°12'W Scotlandville, Louisiana	3,400,000	crude	fire
1979					
4 Jan 79	tank farm F.W. Bechman	51°26'N, 06°45'E Duisburg, West Germany	2,600,000	heavy fuel	explosion & fire; equipment spark
23 Mar 79	storage depot	19°49'S, 34°52'E Beira, Mozambique	(6,300,000)	undetermined	sabotage

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
** 6 Jul 79	storage tank BP, Royal Dutch/ Shell, Nigerian National Petroleum Corp.	05°21'N, 05°25'E Forcados, Nigeria	23,940,000	crude	structural failure
5 Aug 79	storage tank Gulf Oil Corp. refinery	41°40'N, 83°35'W Toledo, Ohio	up to 1,000,000	unleaded gasoline	explosion & fire; lightning
1 Oc 79	16 storage tanks	51°26'N, 06°45' Duisburg, West Germany	over 5,000,000	gasoline & heating oil	explosion & fire; welding accident; 3 injured
** 19 Oct 79	storage tank U.S. Marine Corp.	35°20'N, 138°58'E Gotemba, Japan	N/A	gasoline	tank rupture & fire; typhoon; 3 dead, 42 injured
1980					
5 Aug 80	oil storage tank Canal Electric Co.	41°45'N, 70°29'W Sandwich, Massachusetts	1,600,000	No. 6 fuel	explosion & fire; 2 injured
15 Aug 80	bulk terminal Chevron U.S.A.	21°19'N, 157°50'W Honolulu, Hawaii	N/A	unleaded gasoline	tank overflow; explosion & fire; personnel error; 2 injured
3 Sep- Nov 80	oil facilities, including terminals, storage tanks, pipelines, and refineries	southwestern Iran & southeastern Iraq	millions of gallons	crudes & refined products	explosions & fires; attacks during Iran/Iraq war
7 Sep 80	storage tanks Mobil Oil Corp.	42°40'N, 73°49'W Albany, New York	N/A	undetermined	explosion & fire; 10 injured
1 Dec 80	storage tank Gulf Canada Products Co., tank truck facility Willms Transport Ltd.	50°23'N, 105°35'W Moose Jaw, Saskatchewan	up to 4,200,000	crude	explosion & fire
26 Dec 80	storage tank Petroleos Mexicanos	18°10'N, 94°25'W Coatzacoalcos, Mexico	up to 3,150,000	crude	pumping mishap
1981					
Jun- Oct 81	production, storage, and refining facilities	southwestern Iran & southeastern Iraq	millions of gallons	crudes & refined products	attacks during Iran/Iraq war

	DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
	23 Jul 81	storage tank General American Transportation Co.	30°N, 90°28'W Goodhope, Louisiana	N/A	gasoline	fire; 1 dead, 1 injured
	30 Jul 81	storage tank chemical and petroleum plant	Italy	N/A	undetermined	explosion; 3 dead
	20 Aug 81	storage tanks Kuwait National Petroleum Co.	29°02'N, 48°10'E Shuaybah, Kuwait	31,165,000 burned & spilled	napththa, kerosene, & heavy diesel	fire
	1982					
**	10-11 Jan 82	storage tank Seabord Coastline Railroad Co.	34°14'N, 77°55'W Wilmington, North Carolina	2,000,000	diesel	tank rupture; seepage into ground
**	18 May 82	5 storage tanks Shore Oil Co.	32°23'N, 94°54'W Kilgore, Texas	N/A	crude, diesel, & gasoline	explosion & fire; tank ruptures; welding spark
	20 May 82	15 storage tanks Kerr-McGee Corp.	32°44'N, 93°25'W Cotton Valley, Louisiana	N/A	undetermined	fire
	19-22 Dec 82	2 storage tanks Caracas Electricity	(10°35'N, 66°56'W) (Caracas, Venezuela)	(6,660,000 burned)	bunker	fire; 150 dead; up to $50 million in damages
	21 Dec 82	2 storage tanks Kenya Pipeline Co. Ltd.	01°17'S, 36°50'E Nairobi, Kenya	1,321,000 burned	gasoline	fire
	1983					
	7-9 Jan 83	3 storage tanks Texaco U.S.A.	(40°44'N, 74°12'W) Newark, New Jersey	3,400,000	gasoline	explosions & fire; tank overflow; 1 dead, 24 injured; $15 million damage
	30 Aug- 2 Sep 83	storage tank Amoco UK Ltd. refinery	51°44'N, 05°02'W Milford Haven, U.K.	7,560,000 burned	crude	fire
	31 Aug- 1 Sep 83	storage tank Tenneco Oil Co.	29°55'N, 89°55'W Chalmette, Louisiana	2,520,000	gasoline	explosion & fire; 1 dead, 2 injured; 3,000 evacuated

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
5 Oct 83	storage tank Atlantic Richfield Co.	40°00'N, 75°10'W Philadelphia, Pennsylvania	up to 1,000,000 burned	naphtha	explosion & fire
11 Oct 83	8 storage tanks	12°29'N, 87°14'W Corinto, Nicaragua	1,600,000 burned & spilled	diesel & aviation	explosion & fire; terrorist attack; 10 injured
3-11 Nov 83	12 storage tanks refinery	34°27'N, 35°50'E Tripoli, Lebanon	several million burned & spilled	crude	explosions & fire; military attack
17-19 Nov 83	storage tank Shell Eastern Petroleum refinery	(01°15'N, 103°45'E) Pulau Bukom, Singapore	over 4,755,000 burned	fuel	fire
25-31 Dec 83	4 storage tanks & pipeline Mid-Valley Pipeline Co.	(40°43'N, 84°06'W) near Lima, Ohio	about 8,400,000 burned	crude	fire
1984					
18 Aug 84	storage tank Triangle Oil Corp.	30°29'N, 81°40'W Jacksonville, Florida	(2,520,000) burned	unleaded gasoline	fire; lightning
1985					
21 Dec 85	oil storage depot AGIP	40°50'N, 14°15'E Naples, Italy	N/A	undetermined	explosion & fire; 3 dead, 160 injured
1986					
5 Apr 86	storage tank	(37°N, 127°E) Osan Air Base, South Korea	840,000	JP-4 fuel	explosion & fire; 16 dead, 12 injured
** 27 Apr 86	storage tank Refineria Panama S.A. (Texaco subsidiary)	(9°20'N, 80°W) 10 mi south of Colon, Panama	10,080,000	light crude oil	tank rupture; extensive damage to biological reserve & mangrove swamps
9 Jul 86	storage tank IMTT terminal	40°39'N, 74°08'W Bayonne, New Jersey	up to 672,000	unleaded gasoline	fire; 2 injured; 4 tanks destroyed
1987					
9 Aug 87	storage tank Chevron U.S.A. refinery	40°00'N, 75°10'W Philadelphia, Pennsylvania	1,008,000	gasoline	fire; lightning

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
1988					
** 2 Jan 88	storage tank Ashland Petroleum Co.	(40°15'N, 80°00'W) Jefferson Borough, Pennsylvania	3,850,000	No. 2 diesel	tank rupture

Notes: Spills caused by tank ruptures have been marked with a double asterisk.

Any location information that is considered a rough approximation is given in parentheses.

N/A indicates that the data are not available.

SUMMARY OF TANK-RELATED INCIDENTS -- 1978 TO 1985

Oil Spill Intelligence Report
P.O. Box 199
Cambridge, MA 02238
Tel: 617-492-3310

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
1978					
1 Jan 78	service station	45°34'N, 73°55'W St. Eustach, Quebec	48,000	gasoline	storage tank leak; explosion
6 Jan 78	storage depot	59°32'N, 108°50'W Bushell Inlet, Saskatchewan	76,000	heating	pipe rupture
8 Jan 78	storage depot	65°10'N, 126°42'W Norman Wells, Northwest Territories	24,000	marine diesel	tank overfill
10 Jan 78	fuel tank complex Winslow Oil Co.	36°11'N, 76°30'W Hertford, North Carolina	30,000	No. 2 fuel	explosion & fire
23 Jan 78	storage depot	45°38'N, 73°33'W Montreal, Quebec	50,000	heating	equipment failure
27 Jan 78	onshore facility Celotex Corp.	35°11'N, 90°02'W Memphis, Tennessee	25,000	asphalt	tank valve rupture
** 31 Jan 78	onshore bulk cargo transfer	40°41'N, 74°08'W New Jersey	3,000,000	No. 4 fuel	tank rupture
4 Feb 78	storage tank National Heat & Power Co.	40°00'N, 75°10'W Philadelphia, Pennsylvania	40,000	No. 2 diesel fuel	tank overflow
** 8 Feb 78	tank farm Union Oil Co. of California	42°24'N, 71°01'W Revere, Massachusetts	1,500,000	gasoline	tank fracture
19 Feb 78	storage facility	43°42'N, 70°12'W) Maine	30,000	light diesel	valve failure
21 Feb 78	storage facility Texaco, Inc.	(34°00'N, 118°15'W) (Los Angeles, California)	3,360,000	gasoline	explosion
25 Feb 78	storage depot	45°38'N, 73°30'W Boucherville, Quebec	24,000	diesel	pipe rupture
26 Feb 78	storage facility Getty Oil Co.	(34°56'N, 120°25'W) (Santa Maria, California)	100,000	crude	fire
28 Feb 78	storage depot	30°20'N, 81°40'W Jacksonville, Florida	N/A	undetermined	fire

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
2 Mar 78	storage depot	45°40'N, 73°30'W Pointe aux Trembles, Quebec	30,000	diesel	tank overflow
** 27 Mar 78	storage tank Medfield State Hospital	42°12'N, 71°19'W Medfield, Massachusetts	65,000	No. 6 fuel	tank failure
28 Mar 78	storage depot	50°23'N, 105°35'W Moose Jaw, Saskatchewan	84,000	asphalt	tank leak
15 Apr 78	storage facility Arabian American Oil Co.	25°50'N, 49°40'E Abqaiq, Saudi Arabia	N/A	crude	explosion & fire
24 Apr 78	storage depot	45°16'N, 66°03'W St. John, New Brunswick	63,000	diesel	valve failure
27 Apr 78	tank farm Gulf of Suez Petroleum Co.	28°08'N, 33°16'E Ras Shukheir, Egypt	2,526,000	crude	explosion & fire
22 May 78	storage tanks Kuwaiti Oil Co.	Al Managish, Kuwait	(up to 2,100,000)	crude	fire
** 12 Jun 78	storage tanks Tohoku Oil Co.	(31°50'N, 130°17'E) (Sendai, Japan)	15,000,000	unknown	tank rupture; earthquake
13 Jun 78	storage depot	(74°40'N, 95°00'W) Resolute Bay, Northwest Territories	35,000	jet fuel	pipe rupture
14 Jun 78	storage facility	Mile 185.2, Cumberland River, Tennessee	65,000	light diesel	tank overflow
29 Jun 78	storage tank Standard Oil Co. (Indiana)	30°24'N, 88°15'W Bayou La Batre, Alabama	up to 34,000	lubrication	fire; lightning
2 Aug 78	storage depot	47°01'N, 65°36'W Newcastle, New Brunswick	126,000	bunker C	tank leak
19 Aug 78	storage facility	40°37'N, 73°39'W New York	30,000	gasoline	handling mishap
11 Dec 78	fuel storage depot BP, Shell, TOTAL	17°43'S, 31°05'E Salisbury, Rhodesia	20,000,000	gasoline, paraffin, & diesel fuel	explosion & fire; sabotage
** 14 Dec 78	storage tank Commonwealth Oil Refining Co.	(18°00'N, 66°35'W) Penuelas, Puerto Rico	10,500,000	No. 6 fuel	tank rupture
21 Dec 78	storage depot	51°30'N, 79°45'W Fort Rupert, Quebec	36,000	diesel	tank overflow

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
24 Dec 78	tank Clarco Pipeline Co.	30°31'N, 91°12'W Scotlandville, Louisiana	3,400,000	crude	fire
27 Dec 78	storage depot	66°35'N, 86°20'W Repulse Bay, Northwest Territories	102,000	diesel	valve failure
1979					
1 Jan 79	storage tank	48°49'N, 64°26'W Gaspe, Quebec	90,000	stove oil	broken drain valve; freezing
4 Jan 79	tank farm F.W. Beckman	51°26'N, 06°45'E Duisburg, West Germany	2,600,000	heavy fuel	explosion & fire; equipment spark
9 Jan 79	storage tank power plant	60°50'N, 114°28'W Pine Point, Northwest Territories	20,000	diesel	tank overflow
17 Jan 79	storage facility Texaco	51°32'N, 00°35'E Canvey Island, England	up to 166,000	kerosene	explosion; suspected sabotage
26 Jan 79	storage tank Louisiana Pacific Ketchikan pulp mill	55°25'N, 131°40'W Ketchikan, Alaska	38,000	No. 6	loose pipe; alleged vandalism
30 Jan 79	storage depot [illegible]	56°10'N, 10°13'E Arhus, Denmark	(42,000)	light fuel	undetermined
11-12 Feb 79	storage tanks Amoco Oil Co. refinery	41°34'N, 87°20'W Whiting, Indiana	up to 420,000	diesel fuel	fire
19 Feb 79	storage tank	50°27'N, 104°37'W Regina, Saskatchewan	19,000	gasoline	equipment failure
5 Mar 79	storage tank Exxon Co. U.S.A.	41°18'N, 72°55'W New Haven, Connecticut	200,000	JP-4 fuel	pipe fracture
23 Mar 79	storage depot	19°49'S, 34°52'E Beira, Mozambique	(6,300,000)	undetermined	sabotage
15 Apr 79	oil depot Caltex Petroleum Corp.	20°10'S, 30°49'E Fort Victoria, Rhodesia	250,000	diesel fuel, gasoline, & motor oil	fire; sabotage
15 Apr 79	storage tank pipe University of Winona	44°02'N, 91°37'W Winona, Minnesota	up to 18,000	No. 6	pipe fracture; 200,000 fish killed
24 Apr 79	storage tank hydroelectric plant	51°15'N, 77°00'W Baie James, Quebec	27,000	waste oil	faulty valve

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
25 Apr 79	tank farm	69°23'N, 81°46'W Igloolk, Northwest Territories	42,000	diesel	open valve
20 Jun 79	fuel storage bladders Chevron U.S.A.	Cape Beaufort, Alaska	up to 40,000	Jet A-50 aviation fuel	rupture; frost action
** 6 Jul 79	storage tank BP, Royal Dutch/Shell, & Nigerian National Petroleum Corp.	05°21'N, 05°25'E Forcados, Nigeria	23,940,000	crude	structural failure
23 Jul 79	storage tank MP	39°18'N, 76°38'W Baltimore, Maryland	more than 50,000	gasoline	valve error
** 29 Jul 79	storage tank General Oil Corp.	34°35'N, 135°28'E Sakai, Japan	100,000	heavy	structural damage
5 Aug 79	storage tank Gulf Oil Corp. refinery	41°40'N, 83°35'W Toledo, Ohio	up to 1,000,000	unleaded gasoline	explosion & fire; lightning
12 Sep 79	storage tank	(40°26'N, 80°00'W) (Pittsburgh, Pennsylvania)	more than 30,000	No. 2 diesel fuel	open valve
22 Sep 79	tanks Stockyards Service Co.	42°30'N, 96°28'W Sioux City, Iowa	66,000	No. 2 fuel	open valves; vandalism
26 Sep 79	storage tank	52°21'N, 04°54'E Amsterdam, Netherlands	up to 385,000	undetermined	explosion; 1 missing, 2 injured
26 Sep 79	storage tanks Penn Pocahontas Coal Corp.	(39°53'N, 79°06'W) (Garrett, Pennsylvania)	32,000	No. 2 diesel fuel	open valves; vandalism
1 Oct 79	16 storage tanks	51°26'N, 06°45'E Duisburg, West Germany	above 5,000,000	gasoline & heating	explosion & fire; welding accident; 3 injured
** 19 Oct 79	storage tank U.S. Marine Corp.	35°20'N, 138°58'E Gotemba, Japan	N/A	gasoline	rupture & fire; typhoon; 3 dead, 42 injured
23 Oct 79	storage tank refinery	45°30'N, 73°31'W Montreal, Quebec	175,000	gasoline	tank overflow
2 Dec 79	storage tank pulp mill	49°43'N, 126°03'W Gold River, British Columbia	134,000	diesel	tank overflow
11 Dec 79	tank farm	45°22'N, 63°16'W Truro, Nova Scotia	20,000	diesel & creosote	tank overflow

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
15 Dec 79	storage tank Clark Oil Refining Corp.	(42°23'N, 83°05'W) Taylor, Michigan	400,000	gasoline	fire; tank overflow
1980					
14 Jan 80	bulk storage facility	Ohio River Mile 472.2	34,000	jet fuel	tank overflow
15 Jan 80	bulk transfer facility	40°50'N, 73°40'W Port Washington, New York	50,000	light diesel	tank overflow; personnel error
29 Jan 80	bulk storage facility Bethlahem Steel	40°14'N, 76°50'W (Harrisburg, Pennsylvania)	20,000	light diesel	hose leak; personnel error
30 Jan 80	bulk transfer facility	41°14'N, 72°54'W (West Haven, Connecticut)	10,000	light diesel	tank overflow; personnel error
31 Jan 80	bulk storage facility Texaco, Inc.	Ohio	33,000	gasoline	tank leak
** 1 Feb 80	fuel tank Kansas City Municipal Airport	39°02'N, 94°33'W Kansas City, Missouri	16,000	Jet A fuel	rupture; truck collision
6 Apr 80	oil storage facility	(34°02'N, 45°30'E) (Naft-e Shah, Iran)	N/A	undetermined	fire; military attack
20 May 80	storage tank Amerada Hess Corp.	39°18'N, 76°38'W Baltimore, Maryland	10,000	No. 2 fuel	tank overflow; improper valve operation; personnel error
25 May 80	refinery storage tank Port Petroleum Inc.	(32°20'N, 93°50'W) Stonewall, Louisiana	16,000	naphtha	valve left open; personnel error
15 Jun 80	fuel tanks Jersey City Water Treatment Facility	40°55'N, 74°24'W Boonton, New Jersey	N/A	No. 2 diesel fuel	leaking oil filter
21 Jul 80	bulk storage facility Gulf Oil Corp.	29°40'N, 91°05'W (Morgan City, Louisiana)	29,000	medium crude	vandalism
28 Jul 80	oil storage facility Shell Oil Co.	03°45'S, 38°35'W Fortaleza, Brazil	500,000	gasoline	fire
5 Aug 80	oil storage tank Canal Electric Co.	41°45'N, 70°29'W Sandwich, Massachusetts	1,600,000	No. 6 fuel	explosion & fire; 2 injured
11 Aug 80	oil storage facilities	12°20'S, 13°34'E Lobito, Angola	N/A	undetermined	sabotage

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
12 Aug 80	storage tank West Bank Oil Co.	39°58'N, 75°03'W Pennsauken, New Jersey	N/A	asphalt	explosion & fire
13 Aug 80	bulk transfer facility	Lower Mississippi River Mile 102.4	21,000	light crude	tank overflow; personnel error
15 Aug 80	bulk terminal Chevron U.S.A. Inc.	21°19'N, 157°50'W Honolulu, Hawaii	N/A	unleaded gasoline	explosion & fire; tank overflow; personnel error; 2 injured
27 Aug 80	oil storage tanks gas turbine plant	(13°40'N, 89°10'W) Soyapango, El Salvador	100,000	No. 2 fuel	fire; sabotage
2 Sep 80	oil storage tank	45°39'N, 13°47'E Trieste, Italy	N/A	undetermined	lightning
3 Sep- Nov 80	oil facilities, including terminals, storage tanks, pipelines, & refineries	southwestern Iran & southeastern Iraq	millions of gallons	crude & refined petroleum products	explosions & fires; attacks during Iran/Iraq war
6 Sep 80	bulk transfer facility Union Oil Co. of California	30°00'N, 93°59'W (Nederland, Texas)	13,000	waste	structural damage; heavy weather
6 Sep 80	pipeline & storage tank CN Marine terminal	47°34'N, 59°09'W Channel Port Aux Basques, Newfoundland	172,000	bunker C	dike overflow; faulty pipeline coupling
7 Sep 80	storage tanks Mobil Oil Corp.	42°40'N, 73°49'W Albany, New York	N/A	undetermined	explosion & fire; 10 injured
9 Sep 80	oil storage tank Exxon Co. U.S.A.	39°18'N, 76°38'W Baltimore, Maryland	137,000	No. 2 diesel	open valve; vandalism
13 Sep 80	oil storage tanks gas turbine plant	(13°40'N, 89°10'W) Soyapango, El Salvador	10,000	No. 2 fuel	fire; sabotage
21 Sep 80	oil storage tank	(37°32'N, 45°02'E) (Reza'iyeh, Iran)	250,000	kerosene	fire; attack during Iran/Iraq war; 11 injured
27 Sep 80	storage tank Elmendorf Air Force Base	61°14'N, 149°54'W (Anchorage, Alaska)	36,000	jet fuel	valve failure
17 Oct 80	fuel tank Kipnuk School	(60°N, 164°W) Kipnuk, Alaska	10,000	fuel	tank overflow; overfilling
17 Nov 80	oil storage tank Mobil Oil Corp. refinery	(40°50'N, 14°15'E) (Naples, Italy)	N/A	crude	fire

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
1 Dec 80	Gulf Canada Products Co. storage tank Willms Transport Ltd. tank truck facility	50°23'N, 105°35'W Moose Jaw, Saskatchewan	up to 4,200,000	crude	explosion & fire
** 22 Dec 80	hydro-station storage facility	45°09'N, 66°12'W Coleson Cove, New Brunswick	19,000	crude	tank rupture; overstress
26 Dec 80	storage tank Petroleos Mexicanos	18°10'N, 94°25'W Coatzacoalcos, Mexico	up to 3,150,000	crude	pumping mishap
1981					
** 1 Jan 81	storage tank Delta Oil refinery	35°10'N, 90°W Memphis, Tennessee	42,000	gasoline & undetermined	rupture
12 Jan 81	storage tank	39°17'N, 94°30'W (Kansas City, Missouri)	10,000	asphalt & road oil	vandalism
16 Jan 81	storage tank Tennessee Valley Authority	34°45'N, 87°38'W Muscle Shoals, Alabama	30,000	diesel	frozen valve
** 21 Jan 81	storage tank Shell Oil Co. fueling facility	40°01'N, 75°05'W Philadelphia, Pennsylvania	24,000	gasoline	rupture
** 26 Jan 81	storage tank Bethlehem Steel	(39°18'N, 76°38'W) (Baltimore, Maryland)	18,000	No. 2 fuel	rupture
31 Jan 81	storage tank Nova Scotia Forest Industries	45°36'N, 61°22'W Port Hawkesbury, Nova Scotia	12,000	No. 2 fuel	overflow
early Feb 81	storage tanks Esochem de Centro America	13°40'N, 89°10'W San Salvador, El Salvador	N/A	fuel	fire; sabotage
18 Feb 81	storage tank Valley Oil Co.	42°13'N, 73°43'W Claverack, New York	11,000	gasoline	broken valve; personnel error
19 Feb 81	storage tank U.S. Naval Air Station	30°20'N, 81°40'W Jacksonville, Florida	500,000	JP-5 jet fuel	overpressurized tank; suspected sabotage
** 14 Mar 81	storage tank Shell Oil Co. tank farm	47°34'N, 122°21'W Harbor Island, Washington	27,000	gasoline	rupture; overfilling
14-15 Mar 81	7 storage tanks TOTAL facility	(46°49'N, 01°41'E) (Chateauroux, France)	740,000	gasoline	fire; suspected arson
23 Mar 81	storage tank Petro Canada	57°N, 120°40'W Pee Jay Field, British Columbia	13,000	crude	open valve; personnel error

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
24 Mar 81	storage tank	39°34'N, 94°12'W Cameron, Missouri	10,000	gasoline	unknown
29 Mar- 4 Apr 81	pipelines storage depot	06°27'N, 3°25'E Lagos, Nigeria	N/A	undetermined	fire
17-20 Apr 81	storage tank Dometar Chemicals Ltd.	49°50'N, 124°34'W Blubber Bay, British Columbia	20,000	diesel	rupture; corrosion
18 Apr 81	storage tank Shell Eastern Petroleum Ltd.	(01°20'N, 103°50'E) Pulau Bukom, Singapore	750,000 burned	undetermined	fire; lightning
24 Apr 81	storage tank Petro Canada	(57°N, 120°20'W) Pee Jay Field, Alberta	16,000	crude	valve left open; personnel error
14 May 81	storage tank Amoco Oil Corp. terminal	38°51'N, 77°19'W Fairfax, Virginia	300,000	gasoline	overflow; personnel error
18 May 81	storage tank	40°30'N, 82°48'W near Marion, Ohio	17,000	heavy crude	vandalism
24 May 81	storage tank Shell Resources	(67°N, 135°W) Camp Farewell, Northwest Territories	210,000	waste	open valve; fuel poachers
Jun-Oct 81	production, storage, and refining facilities	southwestern Iran & southeastern Iraq	millions of gallons	crudes & refined products	attacks during Iran/Iraq war
12 Jun 81	pipeline & storage tank Arrow Transfer	(60°15'N, 131°10'W) Cassiar, British Columbia	11,000	diesel	break
25 Jun 81	storage tank Anonima Petroli Italiana refinery	(43°37'N, 13°31'E) (Ancona, Italy)	(139,000 burned)	naphtha	fire; 3 injured
** 25 Jun 81	storage tank R.H. Siegfried Co.	28°19'N, 97°18'W Refugio, Texas	20,000	crude	rupture; corrosion
** 13-17 Jul 81	storage tank HMSC Shearwater Canadian Forces Base	44°38'N, 63°35'W Halifax, Nova Scotia	18,000	No. 6 fuel	rupture; corrosion
17 Jul 81	storage tank refinery	(Zahrani, Lebanon)	N/A	undetermined	Israeli air attack
23 Jul 81	storage tank General American Transportation Co.	30°N, 90°28'W Goodhope, Louisiana	N/A	gasoline	fire; 1 dead, 1 injured
** 26 Jul 81	storage tank Gulf Oil Corp.	(36°31'N, 87°21'W) Mile 124, Cumberland River	10,000	gasoline	rupture; material failure

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
30 Jul 81	storage tank chemical and petroleum plant	Italy	N/A	undetermined	explosion; 3 dead
31 Jul 81	storage tank Canamoil	43°42'N, 79°15'W Toronto, Canada	11,000	undetermined	vandalism
20 Aug 81	storage tanks Kuwait National Petroleum Co.	29°02'N, 48°10'E Shuaybah, Kuwait	31,165,000 burned & spilled	naphtha, kerosene, & heavy diesel	fire
28 Aug 81	storage tank Canadian Industrial Paper Co.	47°26'N, 72°47'W La Tuque, Quebec	13,000	No. 6 fuel	unknown
6 Sep 81	storage tank Sun Oil Co. refinery	36°07'N, 95°58'W Tulsa, Oklahoma	378,000 burned	gasoline	explosion & fire; 2 injured
25 Sep 81	test tank	central Sumatra, Indonesia	11,000	Sumatran light crude	overflow
16 Oct 81	storage tank Esso Resources Canada, Ltd.	65°18'N, 126°42'W Norman Wells, Northwest Territories	12,000	crude	unknown
16 Oct 81	storage tank Fort Wainwright Air Force Base	64°49'N, 147°40'W Fairbanks, Alaska	84,000	diesel	overflow
25 Oct 81	storage tank Gordon Terminal tank farm	(40°32'N, 80°16'W) (Moon Township, Pennsylvania)	11,000	kerosene	open valves on drainage line; vandalism
27 Oct 81	storage tank Abitibi-Price	48°33'N, 58°[illegible]'W Stephenville, Newfoundland	13,000	No. 6 fuel	overflow; personnel error
27 Oct 81	storage tank Port City Waste Oil	30°40'N, 88°05'W Mobile, Alabama	150,000	waste	open valves; vandalism
6 Nov 81	2 storage tanks	(43°02'N, 78°30'W) (Akron, New York)	N/A	gasoline & kerosene	fire; vandalism
24 Nov 81	storage tanks	central Sumatra, Indonesia	19,000	Sumatran light crude	leak
27 Nov 81	2 storage tanks E.S. Brady Oil Co.	39°18'N, 76°38'W Baltimore, Maryland	35,000	No. 2 fuel	open valves; vandalism
4 Dec 81	storage tank	(64°50'N, 147°50'W) North Pole, Alaska	10,000	JP-4 aviation fuel	overfilling
** 8 Dec 81	storage tank processing facility	30°30'N, 91°10'W Baton Rouge, Louisiana	20,000	undetermined	rupture

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
26 Dec 81	storage tank Fort Wainwright Air Force Base	64°49'N, 147°40'W Fairbanks, Alaska	31,000	JP-4 aviation fuel	open valves; vandalism
27 Dec 81	storage tank Reliable Oil Co.	(41°17'N, 73°47'W) (Yorktown Heights, New York)	13,000	No. 2 fuel	pump activated; vandalism
1982					
10 Jan 82	storage tank Canadian National Railways	52°05'N, 119°09'W Blue River, British Columbia	11,000	diesel	pipe rupture
** 10-11 Jan 82	storage tank Seaboard Coastline Railroad Co.	34°14'N, 77°55'W Wilmington, North Carolina	2,000,000	diesel	rupture; seepage into ground
11 Jan 82	storage tank International Petroleum Terminal Co.	41°12'N, 73°12'W Bridgeport, Connecticut	30,000	No. 6 fuel	cracked valve
30 Jan 82	storage tank Exeter Oil Co.	(34°15'N, 119°18'W) (Ventura, California)	over 50,000	crude	vandalism
2 Feb 82	storage tank Texaco Trinidad, Inc.	(10°10'N, 61°30'W) Barrackpore, Trinidad	27,000	crude	open valve
13 Feb 82	storage tank Union Oil Co.	33°57'N, 83°24'W Athens, Georgia	37,000	gasoline	faulty pump valve
25 Feb 82	storage tank Columbia Water & Light Department	38°58'N, 92°20'W Columbia, Missouri	12,000	No. 2 diesel	frozen valve; $18,000 cleanup
3 Mar 82	storage tank Esso Oil Co.	(53°33'N, 10°00'E) Hamburg, West Germany	up to 264,000	bitumen	fire
25 Mar 82	storage tank Eagle Manufacturing Co.	30°32'N, 96°42'W Caldwell, Texas	10,000	diesel fuel	valve rupture; running by truck
30 Mar 82	storage building Southern Oil Services, Inc.	36°10'N, 86°50'W Nashville, Tennessee	68,000 spilled; up to 232,000 burned	lubricating & motor oil	fire
30 Mar 82	storage tank Texaco Trinidad Inc.	(10°00'N, 61°20'W) Forest Reserve, Trinidad	31,000	crude	overflow
2 Apr 82	storage tank Weirton Steel Co.	40°24'N, 80°37'W Weirton, West Virginia	N/A	No. 6 fuel	overfilling; broken gauge

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
3 Apr 82	16 storage tanks Pennzoil Co. oil field	(38°16'N, 82°07'W) Lincoln County, West Virginia	30,000	crude	alleged vandalism
7 May 82	separation tank Sun Gas Co.	(29°17'N, 94°48'W) (Galveston, Texas)	12,000	crude	open valves
10 May 82	3 storage tank Pennzoil Co.	(37°35'N, 82°15'W) near Newton, West Virginia	12,000	crude	alleged vandalism
** 18 May 82	5 storage tanks Shore Oil Co.	32°23'N, 94°54'E Kilgore, Texas	N/A	crude, diesel, & gasoline	explosion & fire; welding spark tank ruptures
20 May 82	15 storage tanks Kerr-McGee Corp.	32°44'N, 93°25'W Cotton Valley, Louisiana	N/A	undetermined	fire
27 May 82	storage facility	25°27'S, 31°41'E Hectorspruit, South Africa	N/A	gasoline	explosion & fire
31 May 82	storage tank Northern Canada Power Commission	62°30'N, 114°29'W Yellowknife, Northwest Territories	10,000	P-30 diesel	transfer mishap
2 Jun 82	storage tank Prince George Pulp and Paper Ltd.	53°55'N, 122°49'W Prince George, British Columbia	48,000	bunker C	frozen valve on tank; open valve in dike
13 Jun 82	storage tank Chemical Petroleum Exchange, Inc.	41°50'N, 87°45'W Cicero, Illinois	300,000	No. 6 fuel	open valve
20 Jun 82	storage tank Esso Resources Canada, Ltd.	65°18'N, 126°42'W Norman Wells, Northwest Territories	66,000	naphtha	overfilling; personnel error
10 Jul 82	storage tank TOTAL Petroleum Co.	(34°11'N, 97°08'W) (Ardmore, Oklahoma)	over 21,000	asphalt/fuel oil mixture	open valve dike; corrosion
26 Jul 82	storage tank Savannah State College	32°04'N, 81°07'W Savannah, Georgia	10,000	No. 2 fuel	pump left unattended; personnel error
6 Sep 82	storage tank airport	29°53'S, 31°00'E Durban, South Africa	N/A	undetermined	fire; lightning
7 Sep 82	storage tank Hansen Petroleum Products	68°13'N, 135°00'W Aklavik, Northwest Territories	10,000	gasoline	broken pipe; ground shifting
10-11 Sep 82	2 storage tanks Petro Processors, Inc.	25°54'N, 97°30'W Brownsville, Texas	462,000	waste oil	vandalism

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
14 Sep 82	storage tank Canadian Department of Indian Affairs and Northern Development	52°10'N, 78°30'W Eastmain, Quebec	26,000	diesel	barge offloading mishap
22 Oct 82	storage tank	13°36'N, 89°50'W Acajutla, El Salvador	N/A	undetermined	sabotage
25 Oct 82	storage tank S.J. Groves	(55°25'N, 131°40'W) (Ketchikan, Alaska)	17,000	diesel	open valve; personnel error
2 Nov 82	3 storage tanks U.S. Army	37°14'N, 77°24'W Fort Lee, Petersburg, Virginia	35,000	diesel	open valve; personnel error
** 8 Nov 82	storage tank Texaco Canada Ltd.	45°16'N, 66°03'W Saint John, New Brunswick	31,000	gasoline	rupture; overpressurization; personnel error
8 Nov 82	5 storage tanks Mobil Oil Corp.	northern Natal province, South Africa	up to 192,000	diesel & octane	fire; sabotage
25 Nov 82	storage tank Suncor Ltd.	(57°10'N, 122°36'W) (Fort St. John, British Columbia)	13,000	crude	open valve; human error
19-22 Dec 82	2 storage tanks Caracas Electricity	(10°35'N, 66°56'W) (Caracas, Venezuela)	(6,660,000 burned)	bunker	fire; 150 dead; up to $50 million in damages
21 Dec 82	2 storage tanks Kenya Pipeline Co. Ltd.	01°17'S, 36°50'E Nairobi, Kenya	1,321,000 burned	gasoline	fire
1983					
7-9 Jan 83	3 storage tanks Texaco U.S.A.	(40°44'N, 74°12'W) Newark, New Jersey	3,400,000	gasoline	tank overflow; explosions & fire; 1 dead, 24 injured; $15 million damage
21 Jan 83	bulk storage facility Amoco Production Co.	44°03'N, 109°05'W (Sunshine, Wyoming)	13,000	heavy crude	equipment failure
21 Jan 83	tank Amoco Production Co.	44°05'N, 108°55'W (Meteetse, Wyoming)	46,000	light crude	tank overflow; pump malfunction; electrical failure
24 Jan 83	storage tank Shell California Production Inc.	(33°47'N, 118°15'W) Brea, California	250,000	crude	tank overflow; shutdown system failure

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
8 Feb 83	2 tank trucks & 1 storage tank W.M. Tank Lines Co.	33°47'N, 118°10'W Signal Hill, California	at least 10,000	waste oil	vandalism
10 Feb 83	marine facility American Petrofina	29°59'N, 93°53'W Port Neches, Texas	15,000	light crude	structural failure; improper maintenance
** 13 Feb 83	storage tank Amoco Oil Co.	40°35'N, 74°14'W Carteret, New Jersey	N/A	gasoline	rupture; corrosion
20 Feb 83	bulk storage facility Eureka Pipeline	38°15'N, 81°58'W Lincoln County, West Virginia	14,000	heavy crude	intentional discharge
28 Feb 83	bulk storage facility Citronelle	30°45'N, 88°16'W (Mobile, Alabama)	12,000	light crude	improper equipment handling
** 28 Feb 83	storage tank Chevron U.S.A.	33°45'N, 118°20'W El Segundo, California	32,000	light diesel	tank rupture; corrosion;
25 Apr 83	5 storage tanks Getty Oil Co.	(31°58'N, 95°59'W) near Cayuga, Texas	42,000 burned	crude	fire during tank cleaning operation; 2 injured
20 May 83	storage tank Texaco	29°35'N, 90°01'W Lafitte, Louisiana	13,000	crude	open tank valve; vandalism
8 Jun 83	storage tank Marathon Oil Co.	27°58'N, 82°38'W Tampa, Florida	30,000	unleaded gasoline	tank overfilling; personnel error
15 Jun 83	storage tank Chevron U.S.A.	33°34'N, 118°20'W El Segundo, California	11,000	No. 6 fuel	equipment failure
** 5 Jul 83	storage tank Belcher Oil Co.	40°39'N, 74°08'W Bayonne, New Jersey	420,000	No. 6 fuel	valve & pipeline rupture; collapse of tank foundation
26 Aug 83	storage tank Hydro Quebec	47°24'N, 61°58'W Rteng du Nord, Quebec	12,000	No. 5 fuel	tank overfilling; personnel error
30 Aug-2 Sep 83	storage tank Amoco UK Ltd. refinery	51°44'N, 05°02'W Milford Haven, U.K.	7,560,000 burned	crude	fire
31 Aug-1 Sep 83	storage tank Tenneco Oil Co.	29°55'N, 89°55'W Chalmette, Louisiana	1,520,000	gasoline	explosion & fire; 1 dead, 2 injured; 3,000 evacuated
3 Sep 83	storage tank Ultramar Canada	51°24'N, 55°37'W St. Anthony, Newfoundland	34,000	furnace oil	valve failure
4 Sep 83	bulk cargo transfer facility Texaco	25°21'N, 98°00'W Brownsville, Texas	38,000	gasoline	flanges improperly secured; improper equipment handling

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
23 Sep 83	storage tanks	(14°55'S, 13°30'E) near Sa da Bandeira, Angola	undetermined amount burned & spilled	fuel	attack
3 Oct 83	2 storage tanks	12°00'N, 83°49'W near Bluefields, Nicaragua	369,000 burned & spilled	fuel & gasoline	explosion; sabotage
4 Oct 83	facility Consumer Gas Supplies Ltd.	10°38'N, 61°31'W Port of Spain, Trinidad and Tobago	10,000 burned	liquefied petroleum gas	explosion & fire
5 Oct 83	storage tank Atlantic Richfield Co.	40°00'N, 75°10'W Philadelphia, Pennsylvania	up to 1,000,000 burned	naphtha	explosion & fire
10 Oct 83	storage depot TOTAL South Africa	24°55'S, 28°15'E Mamabatha, South Africa	up to 57,000 burned & spilled	gasoline	explosion & fire; terrorist attack
11 Oct 83	8 storage tanks	12°29'N, 87°14'W Corinto, Nicaragua	1,400,000 burned & spilled	diesel & aviation	explosion & fire; terrorist attack; 10 injured
15-17 Oct 83	storage tank Exxon Pipeline Co.	29°31'N, 95°06'W (Webster, Texas)	104,000	light crude	faulty seal on tank's mixing unit
3-11 Nov 83	12 storage tanks refinery	34°27'N, 35°50'E Tripoli, Lebanon	several million burned & spilled	crude	explosions & fire; military attack
17-19 Nov 83	storage tank Shell Eastern Petroleum refinery	(01°15'N, 103°65'E) Pulau Bukom, Singapore	over 4,755,000 burned	fuel	fire
25-31 Dec 83	4 storage tanks & pipeline Mid-Valley Pipeline Co.	(40°43'N, 84°06'W) near Lima, Ohio	about 8,400,000 burned	crude	fire
1984					
1 Jan 84	bulk storage facility	32°00'N, 94°40'W near Enterprise, Texas	11,000	crude	equipment failure
** 4 Jan 84	bulk storage facility	Ohio River, Indiana	63,000	diesel	tank rupture
** 5 Jan 84	storage tank Imperial Oil refinery	44°39'N, 63°33'W Dartmouth, Nova Scotia	(60,000)	heating	overflow; tank top rupture
17 Jan 84	storage tank	50°12'N, 66°23'W Terminal de Sept-Iles, Quebec	10,000	diesel	pipeline rupture

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
17 Feb 84	storage tank CAPAS Co.	45°27'N, 73°46'W Dorval Airport, Quebec	(12,000)	Jet A fuel	broken drainage valve
16 Mar 84	bulk storage facility	39°10'N, 94°45'W near Kansas City, Kansas	17,000	diesel	tank overflow
20 Mar 84	storage tank B.C. Timber Ltd.	54°14'N, 130°18'W Prince Rupert, British Columbia	(13,000)	bunker C	valve rupture
** 26 Mar 84	refinery	40°38'N, 74°15'W Carteret, New Jersey	46,000	asphalt	tank rupture
13 Apr 84	2 storage tanks Texaco Canada	46°38'N, 80°48'W Sudbury, Ontario	(535,000)	gasoline & heating	2 simultaneous explosions; sabotage suspected
14 Apr 84	tank farm Shamrock Pipe Line Corp.	36°27'N, 100°34'W Boomer, Texas	111,000	crude	pipeline corrosion
15 Apr 84	bulk storage facility	41°00'N, 98°00'W Marquette, Nebraska	13,000	crude	pump failure
22 Apr 84	storage tank	33°20'N, 117°05'W Pauma Valley, California	(10,000)	diesel	tank struck by vehicle
24 Apr 84	storage tank Societe Asbestos	62°08'N, 74°41'W Deception Bay, Quebec	(143,000)	gasoline	sabotage or vandalism
16 May 84	bulk storage facility	37°40'N, 82°05'W near Matewan, West Virginia	18,000	No. 2 fuel	seepage
30 May 84	tank C,L&P Co.	29°43'N, 91°25'W Sweet Bay Lake, Louisiana	18,000	crude	vandalism
** 9 Jun 84	storage facility	41°58'N, 87°50'W near Chicago, Illinois	10,000	gasoline	tank rupture
5 Jul 84	tank terminal Apex Oil Co.	30°20'N, 81°40'W Jacksonville, Florida	22,000	gasoline	valve malfunction
19 Jul 84	tank farm TOTAL Pipeline Corp.	36°40'N, 97°18'W Tonkawa, Oklahoma	68,000	crude	personnel error
18 Aug 84	storage tank Triangle Oil Corp.	30°29'N, 81°40'W Jacksonville, Florida	(2,520,000) burned	~~Unleaded~~ gasoline	fire; lightning
19 Aug 84	Qua Iboa terminal Mobil Oil Corp.	Rivers State, Nigeria	182,000	crude	transfer operation from tank
4 Sep 84	storage facility	34°43'N, 122°13'W Pacific Ocean, off California	18,000	JP-5 fuel	tank overflow

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
13 Oct 84	tank farm Farmland Industries, Inc.	37°05'N, 96°31'W Cedar Vale, Kansas	369,000	crude	unspecified
30-31 Oct 84	storage tank Interprovincial Pipelines Ltd.	49°01'N, 97°34'W Gretna, Manitoba	(13,000)	diesel	overfilling
17 Nov 84	storage facility	37°30'N, 97°30'W near Clearwater, Kansas	63,000	kerosene	pipeline rupture
18 Nov 84	storage facility	39°47'N, 82°15'W near New Lexington, Ohio	42,000	crude	undetermined
18 Nov 84	storage facility	37°25'N, 97°45'W near Conway Springs, Kansas	26,000	JP-3 fuel	tank overflow
17-18 Dec 84	tank	68°48'N, 76°10'W Hall Beach, Northwest Territories	(16,000)	F-50 diesel	overflow
24 Dec 84	tank farm Amoco Oil Co.	(41°34'N, 87°25'W) Whiting, Indiana	N/A	heavy	fire
25 Dec 84	pipeline	39°35'N, 104°30'W near Kiowa Creek, Colorado	29,000	gasoline	tank overflow
1985					
2 Jan 85	storage tank Newfoundland Hydro plant	47°23'N, 53°08'W Holyrood, Newfoundland	(50,000)	bunker C	overflow; equipment failure
** 3 Jan 85	refinery Gulf Canada	45°38'N, 73°32'W Pointe-aux-Trembles, Quebec	(200,000)	heavy gas	tank rupture
3 Jan 85	tank farm American Petrofina Pipe Line Co.	31°35'N, 102°54'W Monahans, Texas	162,000	crude	unspecified
31 Jan 85	tank farm Chevron Pipeline Co.	Louisiana	420,000	crude	personnel error
10 Feb 85	storage tank E.F. Barrett power station	40°40'N, 73°35'W Island Park, New York	393,000	No. 2 fuel	valve rupture
14 Feb 85	bulk storage facility	27°48'N, 97°24'W near Corpus Christi, Texas	21,000	crude	pipeline rupture

	DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
**	2 Mar 85	land transportation facility	37°50'N, 122°25'W between Sausalito and Oakland, California	40,000	gasoline	tank rupture
	6 Mar 85	storage tank Imperial Oil	48°33'N, 58°35'W Stephenville Airport, Newfoundland	(120,000)	Jet A-1 fuel	pipeline leak
**	20 Mar 85	bulk storage facility	28°40'N, 96°40'W south of Inez, Texas	36,000	crude	tank rupture
	25 Mar 85	storage tank Canada Tungsten	near Sardine Creek & Flat River, Northwest Territories	(12,000)	light diesel	expansion joint leak
	23 Apr 85	bulk storage facility	39°00'N, 84°30'W southwest of Alexandria, Ohio	30,000	asphalt	tank overflow
	3 May 85	industrial plant	Ohio River, West Virginia	16,000	carbolic	tank overflow
**	5 May 85	bulk storage facility	43°38'N, 70°17'W near Portland, Maine	25,000	gasoline	tank rupture
	10 May 85	bulk storage facility	29°50'N, 93°57'W near Port Arthur, Texas	46,000	resin	equipment failure
**	22 Jun 85	storage tank Trumbull Asphalt facility	34°43'N, 76°44'W Morehead City, North Carolina	800,000	asphalt	rupture
	23 Jun 85	tank Macmillan Bloedel Ltd.	49°10'N, 123°50'W Harmac, British Columbia	(56,000)	bunker C	rupture during loading
	1 Jul 85	production facility	41°30'N, 109°00'W northeast of Rock Springs, Wyoming	28,000	crude	tank overflow
	26 Jul 85	tank Texaco	56°21'N, 120°05'W Boundary Field, British Columbia	27,000	unknown	personnel error; tank overflow
**	15 Aug 85	bulk storage facility	29°47'N, 92°08'W south of Abbeville, Louisiana	20,000	crude	tank rupture
	19 Aug 85	underground storage tank Chevron	49°42'N, 123°08'W Squamish, British Columbia	N/A	gasoline	corrosion
	25 Aug 85	bulk storage facility	29°31'N, 91°14'W south of Morgan City, Louisiana	13,000	crude	valve malfunction

DATE	SOURCE	LOCATION	GALLONS LOST	TYPE OF OIL	CAUSES AND EFFECTS
9 Sep 85	bulk storage facility	43°10'N, 93°30'W north of Garner, Iowa	13,000	gasoline	tank overflow
30 Sep 85	bulk storage facility	29°31'N, 91°14'W south of Morgan City, Louisiana	63,000	crude	valve malfunction
Oct 85	storage tank Graham & Assoc.	59°31'N, 108°45'W Lake Athabasca, Saskatchewan	(12,000)	bunker C	vandalism suspected
21 Dec 85	oil storage depot AGIP	40°50'N, 14°15'E Naples, Italy	N/A	undetermined	explosion & fire; 3 people dead, 160 injured
26 Dec 85	storage tank Irving Oil Co.	46°14'N, 63°09'W Charlottetown, Prince Edward Island	12,000	gasoline	valve crack; pipe leak
28 Dec 85	storage tank Imperial Oil Co.	58°46'N, 94°12'W Churchill, Manitoba	187,000	diesel	lever malfunction; valve leak

Notes: Spills caused by tank ruptures have been marked with a double asterisk.

Any location information that is considered a rough approximation is given in parentheses.

N/A indicates that the data are not available.